

Abstract

Title of Thesis: An Exploration of a Textile
Pattern: Pearl Roundels Joined
by Smaller Pearl Discs
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Degree and year: Master of Arts, 1990
Thesis directed by: Professor Ekpo Eyo,
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Scattered around the world are a number of textiles patterned with repeat systems of pearl roundels joined by smaller pearl discs at the tangential points. The roundels bear animal motifs similar to those represented in royal Sasanian and post-Sasanian art. Based on the iconographic and stylistic similarity to the Sasanian motifs, and also because of the popularity of the pearl roundel as a framing device in Sasanian and post-Sasanian stucco and metalwork, art historians have attributed these textile fragments to Sasanian manufacture, usually dating them to the sixth or seventh century.

However, in the late-Sasanian rock sculpture at Taq-i-Bustan, in Western Iran, where twenty-two textile patterns are represented, there are no such textile patterns. Further to the East though, in Soviet Central Asia, recent excavations have uncovered wall-paintings with representations of textiles patterned with pearl roundels joined by smaller pearl discs. Textile fragments

and a complete costume have been unearthed at sites in China and the Caucasus. In light of these discoveries, some scholars have assigned Central Asia, particularly Sogdiana, as the provenance for these textiles.

This thesis examines the unique common characteristics shared by the textiles patterned with pearl roundels joined by smaller pearl discs which identifies them as a group. It suggests that their repeat pattern is most-likely the result of the adaptation of a style of Sasanian coins to the weaving process. Their influence on repeat patterns of floral roundels joined by smaller floral discs awaits future research.

An Exploration of a Textile Pattern:
Pearl Roundels Joined by Smaller Pearl Discs

by

Lorna Carmel
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Thesis submitted to the Faculty of the Graduate School
of the University of Maryland in partial fulfillment
of the requirements for the degree of
Master of Arts
1990

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Acknowledgments

The topic of textiles patterned with pearl roundels joined by smaller pearl discs was suggested to me by Carol Bier, curator, Eastern Hemisphere Collections, The Textile Museum, Washington D.C. I wish to thank her for her advice and encouragement. I'd also like to thank my thesis advisor, Professor Ekpo Eyo, Department of Art History, the University of Maryland at College Park for accepting to advise me on a topic which falls outside of neat art historical boundaries. Dr. Ira Block, Department of Textiles, the University of Maryland at College Park generously shared his expertise with me. Many of my sources were provided to me by Carol Bromberg, editor, Bulletin of the Asia Institute.

The research for this thesis involved reading texts in Russian and Chinese. I'm grateful to Julie Friedlin, Li-Ju Hong, and Mereille Kousseiri for their translations.

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Introduction

Scattered in museums and ecclesiastical treasuries in the United States and Europe are a number of patterned textiles decorated with repeat systems of pearl roundels joined by smaller pearl discs at the four tangential points (fig. 1-9b.) (Appendix 1. fig. 1.).¹ The main roundels bear water birds, winged horses and *senmurvs*, animal motifs similar to those represented in royal Sasanian and post-Sasanian art. The smaller pearl discs encircle crescents, or in one case, are left undecorated.² Based on the similarity of the real and fantastic animal motifs to the repertory of Sasanian animal motifs, and also because of the popularity of the pearl roundel as a framing device in Sasanian and post-Sasanian stucco and metalwork,³ art historians have attributed these textile fragments to Sasanian manufacture, usually dating them to the sixth or seventh centuries A.D.⁴ However, in the twenty-two textile patterns represented in the monumental rock sculpture at Taq-i-Bustan, in Western Iran, of late Sasanian date,⁵ there are no instances of pearl roundels joined by smaller pearl discs.⁶

After World War II, archaeological excavations at sites along the old Silk Route in Asia shed new light on textiles patterned with repeat systems of pearl roundels

joined by smaller pearl discs. Successive teams of Russian archaeologists discovered mural paintings with representations of garments with such textile patterns at ancient Samarkand, Panjikent and Varaksha.⁷ Their main roundels show water-birds, plus boars' heads and winged lions, other popular royal Sasanian and post-Sasanian animal motifs. The smaller pearl discs bear crescents. At Mochtchevaya Balka, in the Northern Caucasus, Soviet archaeologists discovered an entire silk caftan decorated with pearl roundels joined by smaller pearl discs.⁸ At Astana, in the region of Sinkiang, Chinese archaeologists unearthed eight textile fragments showing pearl roundels joined by smaller pearl discs.⁹ Their main roundels bear boar's heads, a bird, and stags. In light of these discoveries, some researchers in the West have reassigned provenances and dates for a few of the textiles patterned with repeat systems of pearl roundels joined by smaller pearl discs.¹⁰ Others cite the new discoveries, but still support Sasanian attributions¹¹ and still others have not recognized the new information at all.¹² In a number of Chinese sources showing the recently-excavated textiles from Astana patterned with pearl roundels joined by smaller pearl discs, there is no reference to the ten similar textiles located outside of China.¹³

This thesis will examine, as a unified group, the

published textiles patterned with repeat systems of pearl roundels joined by smaller pearl discs at the tangential points. The archaeological discoveries and research carried out since World War II will be discussed with an attempt to arrive at more precise dating and attributions of provenance. Evidence regarding the stylistic origin of the repeat system of pearl roundels joined by smaller pearl discs will be presented. Lastly, as a result of studying the textiles as a unified group, some suggestions will be offered for future research.

A comparative technical analysis of the structure of the textiles in this group is outside the scope of this thesis. Such a study would be of great help in attempting to date and assign their provenances.¹⁴ The published technical information is thorough for some pieces and minimal for others.¹⁵ This study takes an art historical approach, but suggests future research in the comparative technical analyses of the textiles in this group.

The Extant Textiles

There are eighteen published textiles patterned with repeat systems of pearl roundels joined by smaller pearl discs (fig. 1-18.) (Appendix 2.). One is in the United States,¹⁶ seven are in Western Europe,¹⁷ one, a complete costume, is in the Soviet Union,¹⁸ one is in India,¹⁹ and eight are in China.²⁰ For the most part, the fabrics are woven in weft-faced compound twill.²¹ The diameters of the main pearl roundels range in size from 13.1 cm. to 41 cm., with one figure only in each roundel. With one exception,²² the smaller pearl discs bear either crescents, a variation of crescents or are void of decoration. Except for the piece in the United States, the textiles were discovered in either church reliquaries or archaeological excavations of ancient burial sites. Also excluding the piece in the United States and two of the Chinese fragments that are published without fabric information, the materials are silk.²³ In many cases, the textile fragment is too small to determine its symmetry operation.²⁴ The following are the published textiles patterned with repeat systems of pearl roundels joined by smaller pearl discs.

The Textile Museum in Washington D.C. owns two fragments of the same fabric bearing a single, long-legged bird in each of its main pearl roundels (fig.

1.).²⁵ Its smaller pearl discs are void of decoration. The material of this textile makes it an exception to the group, it is woven from cotton and wool, not silk. The pearls composing its smaller discs are comparatively smaller than those pearls in the discs of the other textiles in the group. This fragment was acquired in Egypt in the early 1900s, but unfortunately there is no documentation regarding its original find site.²⁶ In The Royal Hunter: Art of the Sasanian Empire, Bier dated this piece to the seventh or eighth century A.D. and assigned Iran or Iraq as its provenance. She noted that the piece bears no resemblance to textiles of local Egyptian production, and acknowledged the problem of its attribution.

"The placement of birds facing opposite directions relates these two fragments to the textile patterns with birds at Taq-i-Bostan. However, the pattern framework of pearl roundels, joined by smaller pearl roundels, seems to be characteristic of works of art created after the fall of the Sasanian dynasty."²⁷

It is interesting that based on the framework of pearl roundels joined by smaller pearl discs, Bier dated this piece to the post-Sasanian period, yet left its provenance within the Sasanian domain, i.e., Iran or Iraq.²⁸

The Museo Sacro in the Vatican owns a fragment in very poor condition (fig. 2.).²⁹ Its main pearl roundel contains a single bird and the smaller pearl discs contain single crescents. The bird stands on a plinth, beribboned at the ankle and holding a curving leaf-form in its mouth. The fragment is from a reliquary in the Sancta Sanctorum in the Lateran in Rome. Ghirshman referred to this piece as Sasanian and dated it to the seventh-eighth century.³⁰ His attribution is somewhat puzzling since the Sasanian dynasty fell in 642. Volbach dated this piece to the fourth century, stating it is "one of the few surviving Sasanian silks."³¹ In 1987, Meister pointed out the parallel between this textile and fabrics represented in the ancient Samarkand wall paintings, concluding that it seems "to come from western-central Asia or early post-Sasanian Iran."³²

Fragments from the same textile belong to the Musée Historique des Tissus in Lyon and the Louvre in Paris (figs. 3. & 4.).³³ The main pearl roundels contain a single winged horse and the smaller pearl discs bear crescents. Gayet, who excavated these pieces from tombs at Antinoe at the close of the last century, claimed they were not locally manufactured, rather, imported from Persia or Assyria. Most scholars have agreed with Gayet's Persian claim, attributing these pieces to the Sasanian

dynasty.³⁴ Bier gave a seventh century date and a provenance of Iran or Transoxiana.³⁵ Riboud and Vial suggested a date of the seventh or eighth century and stated that the place of manufacture is unknown.³⁶ In a catalogue published in 1985 by the Musée Historique des Tissus, Martiniani-Reber claimed the piece is Sasanian, manufactured just before the Arab conquest. Her catalogue entry does not mention the Soviet and Chinese excavations which have revealed textiles with the same repeat system of pearl roundels joined by smaller pearl discs. She based her claim on structural evidence, the use of the *bercle* technique.

"Ceci pourrait expliquer le fait que sa particularite technique (emploi du *bercle*) ait pu disparaitre sans doute au moment de la conquete arabe."³⁷

The Victoria and Albert Museum in London and the Musée des Arts Décoratifs in Paris own fragments of the same fabric, probably the most-published textile in this group (figs. 5. & 6.).³⁸ Its main pearl roundel surrounds a single *senmurv*, the mythical, winged creature with a dog's head, lion's paws and peacock's tail. Its smaller pearl discs bear two stylistic variations of crescents. Horizontally there are the familiar crescent shapes, while vertically there are two parallel mirror

reflections³⁹ of crescents attached by a short bar or shaft. Ghirshman, stating that this textile was used to wrap the relics of Saint Leu, dated it to the seventh century and attributed it to Sasanian art.⁴⁰ Throughout the 1960s, scholars cited Sasanian origin for this piece, dating it to the sixth or seventh century.⁴¹ After the discovery of the caftan at Mochtchevaya Balka in 1969 (see below), both Jeroussalimskaja and Riboud suggested a date of the eighth or ninth century and the provenance of Iran.⁴² Bier also suggested a later date of the seventh to the ninth century, and a broader provenance range of Iran or Transoxiana. She based her claims on the Soviet discoveries of the caftan at Mochtchevaya Balka and the wall-paintings in Central Asia and also on her own observations of differences in details between the representation of this *senmurv* and the *senmurvs* depicted in the rock reliefs at Taq-i-Bustan.⁴³ Wilson dated these pieces to the eighth or ninth century, and suggested a provenance of "Near Eastern."⁴⁴

A *senmurv* is also contained in the main pearl roundels of two fragments in the Eglise Saint Rémi in Reims (figs. 7. & 8.).⁴⁵ The smaller pearl discs contain single crescents. One of the two pieces served as the funerary shroud of Saint Rémi, the other covered the cushion under his head. The final consecration of the

remains of the Saint was performed by Bishop Hincmar in 852. One of the fragments bears a Latin inscription in gold embroidery executed by Alipheide in the ninth century. The date traditionally assigned to these two silks is the eighth century. Riboud did not challenge that dating in "A Newly Excavated Caftan from the Northern Caucasus."⁴⁶ Muthesius however, believes these two monochrome pieces were manufactured around the year 1000, when monochrome silks just began enjoying popularity. Muthesius pointed out further that the remains of Saint Rémi were brought out for recognition twice in the Middle Ages. At the time of recognition, old fabrics were often replaced by new ones and embroidered inscriptions transferred from the old fabric to the new.⁴⁷

Like the divided Saint Leu fragments and the Saint Rémi fragments, a single *senmurv* decorates each of the main pearl roundels in a caftan in the Hermitage Museum in Leningrad (fig. 9a.).⁴⁸ The motif in each of its smaller pearl discs is difficult to determine in reproductions (fig. 9b.). At first glance, it appears to be a single rosette. Upon closer examination however, it becomes clear that the would-be rosette may in fact be two perpendicular mirror reflections⁴⁹ of a crescent. This complete caftan, lined in fur, was discovered during

Soviet archaeological excavations in the Northern Caucasus at the site of Mochtchevaya Balka in 1969.⁵⁰ It was published in 1972 by Jeroussalimskaja,⁵¹ who believed it was probably owned by a chieftain of the local Allano-saltov tribe. Jeroussalimskaja also claimed that Mochtchevaya Balka was located on a northern extension of the old Silk Route, established as an alternative route from the East to Byzantium sometime after the sixth or seventh century.⁵² Jeroussalimskaja and Riboud both assigned a date of the eighth or ninth century and the provenance of Iran for this caftan.⁵³

The New Delhi Museum owns a textile fragment showing a single boar's head framed by a pearl roundel (fig. 10.).⁵⁴ The smaller pearl discs are so fragmentary that it is impossible to determine their decorating motif, although there is enough fabric in the top vertical disc to surmise that a motif did exist. Meister stated that the smaller pearl discs enclose crescents.⁵⁵ This piece was excavated in 1915 at Astana, in Sinkiang province, by the British archaeologist, Sir Aurel Stein. It is one of twelve textile fragments Stein found covering the faces of deceased persons. These face-coverings for the dead, or *fu-mien*, were discovered in practically all the groups of tombs dated from 608 on. Based on archaeological evidence, Stein considered his textile finds to date from

the beginning of the seventh century to the first half of the eighth century.⁵⁶ He recognized a strong Sasanian influence in this boar's head roundel, but was not specific in his suggestion of a provenance.

"we seem justified in first reviewing here those Astana textiles which show purely 'Sasanian' designs and must therefore be considered as products of Western or Central Asia."⁵⁷

Most historians following Stein have agreed with his seventh century date and the question of a specific provenance is still unanswered. Ghirshman and Talbot Rice claimed Sasanian manufacture,⁵⁸ Meister referred to the piece as "stylistically and statistically Western, perhaps Iranian, but of uncertain date,"⁵⁹ and Riboud wrote, in 1977, "I am still unable to decide whether this specimen could be of other than Chinese manufacture or not."⁶⁰

All of the textile fragments in China are located in The Museum of Uighur Autonomous Region, in Sinkiang province.⁶¹ There is one distinct difference between them and the textiles located in the West and India. The Chinese-excavated textiles have smaller pearl discs only at the two horizontal tangential points (Appendix 1, fig. 2). Most of them are in such a fragmentary state that it is difficult to determine their decorating motifs. These

fragments were excavated between 1959 and 1967 from tombs in Astana.⁶² Archaeological evidence has provided precise dating for three of them to just after the mid-seventh century.⁶³

Like Stein's boar's head roundel excavated at Astana, the Chinese-excavated textiles functioned as *fu-mien*. They were usually found attached to a silk frill. A single roundel fit over the face of the deceased and the attached frill, tied at the back, covered the rest of the head. *Fu-mien* have been found only in burials at Astana and Kara-Khoja, in context with nobility or highly-placed functionaries. Their use in funerary rituals in ancient China is documented in ceremonial books which gave specific instructions concerning their proper size, color, and silk-type. Face-covers or masks were also worn as protective coverings by travelers on long trips across the desert. Their presence in a funerary context may indicate a custom to include worldly belongings with the deceased for his or her journey beyond.⁶⁴

In comparison to the textiles patterned with pearl roundels joined by smaller pearl discs which are now in the United States and Europe, those excavated at Astana form a more cohesive group (Appendix 2. Table A & B.). The diameters of their main roundels are 16 to 25 centimeters, while the diameters of the main roundels of

the textiles in the United States and Europe range in size from 13.1 to 41 centimeters.⁶⁵ The colors of the Astana textiles are also more analogous. Their ground colors are red or yellow and the colors of the single animals inside the main pearl roundels are white, blue, green and dark green.⁶⁶ The consistent style of the Astana textiles in this study is angular and stepped. It is important to note that this appearance does not necessarily reflect the choice of a geometric style, but may well be the result of a coarser weave structure.⁶⁷

A single boar's head occupies the main pearl roundel in a fragment in The Museum of Uighur Autonomous Region (fig. 11.).⁶⁸ Only one of its smaller pearl discs is visible. A Chinese source stated that a rosette decorates the smaller pearl disc.⁶⁹ However, another interpretation is clearly possible. The four segments of the would-be rosette could be two perpendicular mirror reflections⁷⁰ of a crescent. Like the curves of the upper and lower portions of the pearls, the horizontally-reflected crescents are rendered in a curved, naturalistic style. The vertically-reflected crescents look angular and geometric, like the straight vertical sides of the would-be rounded pearls. This piece was found in 1959 at Astana Cave 325, dated on archaeological evidence to 661.⁷¹ It is interesting to note that while the cave is soundly

dated, two Chinese sources give the attribution simply as "T'ang".⁷² In fact, all the *fu-mien* in three Chinese publications are attributed only under the broad category of T'ang,⁷³ even though they were recognized by Hsai Nai as "probably made in Central Asia."⁷⁴ Meister gave the cave dating with his reproduction of this textile, but did not suggest a provenance.⁷⁵ Riboud stated that the execution of the patterns and color schemes "seem to suggest a Sogdian type of manufacture," and that "technical and chemical studies of the fibre and colors" could provide conclusive answers.⁷⁶

The other fragment bearing a single boar's head in its main pearl roundel has smaller pearl discs which appear to be void of decoration, although it is difficult to determine from reproductions (fig. 12).⁷⁷ It was excavated in 1969 in Astana Tomb 138.⁷⁸ Riboud dated it from the eighth to the tenth century, and like above, suggested a tentative provenance of Sogdiana.⁷⁹

Five of the *fu-mien* show a single stag in their main pearl roundels (fig. 13-17.). Stags are not represented on garments at Taq-i-Bustan, but the royal stag hunt is a popular subject depicted in Sasanian and post-Sasanian art.⁸⁰ In three of these five *fu-mien* it is impossible to see the decoration of the smaller pearl discs. One was discovered in Astana Cave 322, dated to 663 (fig. 13.),⁸¹

one was found in Astana Tomb 55, excavated in 1966 (fig. 14.),⁸² and the other was found in Astana Cave 337 (fig. 15).⁸³ The fourth stag *fu-mien* was excavated from Astana Tomb 84 in 1967 (fig. 16.).⁸⁴ Its smaller pearl roundels contain plain round circles.

The fifth stag *fu-mien*, discovered in Astana in 1959, shows smaller pearl discs enclosing an interesting motif (fig. 17.).⁸⁵ A circle surrounds a square, creating what appears to be an exceptional and puzzling small disc motif, which will be discussed below.

The last Chinese-excavated textile to be discussed is a fragment showing a main pearl roundel enclosing a single beribboned bird, with its smaller pearl disc motifs indeterminable (fig. 18.).⁸⁶ It was uncovered in Astana Tomb 332 in 1959 and is dated to 665.⁸⁷ Chinese sources attributed it to the T'ang Dynasty, Meister did not suggest a date or provenance, and Riboud tentatively suggested Sogdiana as the provenance for this piece.⁸⁸

Wall-Paintings in Central Asia

Unlike the Chinese excavations in Sinkiang, Soviet excavations in Central Asia did not unearth textiles patterned with pearl roundels joined by smaller pearl discs. But they did reveal monumental wall-paintings with depictions of such textiles.⁸⁹ One of the murals has been accurately dated and therefore is a great help for dating this entire group of textiles.⁹⁰ The main roundels in the wall-paintings show either a single bird holding a pearl strand in its beak, a duck standing on a pearl plinth, a boar's head or a winged lion.⁹¹ These animal motifs are present at Taq-i-Bustan and are familiar in royal Sasanian and post-Sasanian art.⁹² It is difficult to determine the motif in most of the smaller pearl discs.

At ancient Samarkand, on the west wall of the aristocratic or royal residence, a mural shows the arrival of foreign missions at the Samarkand court (fig. 19.). The figure wearing a cap is identified by an inscription as Vargoman, the ruler of Samarkand and Sogdiana from sometime before 655 until 675. The figure next to him carries a bolt of cloth patterned with pearl roundels each bearing a single winged lion and joined by smaller pearl discs bearing single crescents. Presumably an enthroned Sogdian god was depicted in the center of the wall, next to Vargoman, who headed the procession.⁹³

It would appear that the bolt of cloth was an offering to the image of the now-destroyed god in the center of the wall. Belinitski and Marshak believed the mural was painted sometime during Vargoman's reign. They pointed to the fact that except for Vargoman's immediate successor, the later rulers of Sogdiana were not of his dynasty, and therefore the possibility of a memorial painting would be unlikely.⁹⁴

The figure next to Vargoman, carrying the bolt of cloth, wears a garment composed of a number of joined fabrics. The skirt shows a repeat pattern of discrete birds arranged on a plain field. The neck and shoulder, and side and hem of the skirt show pearl roundels joined by smaller pearl discs. Only the hem piece is wide enough to reveal part of the boar's heads decorating its main roundels. Because of the narrowness of these sections, the motifs inside their smaller discs cannot be determined. It is interesting to note that this garment was made from different sections of fabrics. The four sections showing fractions of pearl roundels were not necessarily pieces of material cut off from full-length bolts of fabric, but may have been woven as narrow strips of cloth on looms designed specifically for the speedier and more cost effective production of cloth strips.⁹⁵

Other sections of the wall-paintings from ancient

Samarkand show that textiles patterned with pearl roundels joined by smaller pearl discs were popular not only for clothing, but also for floor spreads and animal covers.⁹⁶ In a scene depicting a delegation of Turks among the foreign missions, a gesturing female sits on a floor spread whose border shows half-pearl roundels joined by smaller pearl discs (fig. 20.). A standing figure in the same scene wears a skirt decorated with pearl roundels joined by a smaller pearl disc. Its main pearl roundels appear to contain single boar's heads. In a scene depicting members of the Chaganian mission to the royal court at Samarkand, half-pearl roundels joined by smaller pearl discs decorate the border of a horse-cover (fig. 21.). The cover lies beneath what appears to be a saddle, decorated with a repeat pattern of discrete pearl roundels. And in another section of the Chaganian mission to the royal court, the sleeve of a camel-rider shows pearl roundels joined by a smaller pearl disc (fig. 22.).⁹⁷

At Panjikent, located about forty miles east of Samarkand, wall-paintings were excavated in more than fifty rooms associated with buildings that functioned as private residences in the seventh and eighth centuries.⁹⁸ In a mural depicting a group of seated banqueters, a figure wears a garment with a center panel and lower

sleeve showing fabric patterned with pearl roundels joined by smaller pearl discs.⁹⁹ The roundels in the center panel piece each contain a bird holding a strand of pearls in its beak.

Varaksha, the seat of the Sogdian dynasty located just northwest of Bukhara, was the first Sogdian site where Soviet archaeologists found wall-paintings.¹⁰⁰ A section of one mural shows a textile with pearl roundels joined by smaller pearl discs (fig. 23.).¹⁰¹ The main pearl roundel surrounds a bird with a strand of pearls in its beak and a smaller pearl disc encloses a crescent. Talbot Rice stated that this textile design resembles Sasanian ones, yet its material was "obviously made locally."¹⁰² Another section shows half-pearl roundels joined by smaller pearl discs decorating the border of an animal cover.¹⁰³ The murals discovered at Varaksha are comparable in style and details of everyday objects to the Panjikent murals of the first half of the eighth century.¹⁰⁴

Another published wall-painting showing pearl roundels joined by smaller pearl discs is located in the Dahlem Museum in Berlin (fig. 24.)¹⁰⁵ It was discovered by a German expedition to Central Asia led by von Le Coq between 1902 and 1907.¹⁰⁶ The site was Kizil, located to the west of Astana. Pearl roundels surround a duck

holding a strand of beads in its beak and single crescents decorate the smaller pearl discs. Presumably the representation of a textile, this pattern decorated a clay bench that ran around the side walls of what is known as the Largest Cave at Kizil.¹⁰⁷ Rowland stated it is "a clear indication of the extraordinarily accurate copying of Sasanian textile patterns in Eastern Turkestan."¹⁰⁸

Geography and History of Central Asia

The excavations discussed above were carried out at sites on or near the northern branch of the old Silk Route.¹⁰⁹ Mochtchevaya Balka, on a northern extension of that route through the Transcaucasus, is the only site located outside the vast area known broadly as Central Asia. It is an area where migrating peoples successively traversed and where history is often shrouded in confusion due to the lack of extant written documentation.¹¹⁰ The sites of Kizil and Astana, in the eastern part of Central Asia, are located in the Tarim Basin, which is today a part of Sinkiang province, Peoples Republic of China. Astana is in an area called ancient Turfan and Sinkiang is also called the Uighur Autonomous Region. The entire area has been known at various times as either Chinese Turkestan, Eastern Turkestan, Chinese Tartary, Kashgaria, Serindia, Chinese Central Asia, Khocho, Kotcho, Kao-chang or Chu-shih.¹¹¹ To the west, in the center of Central Asia, the sites of ancient Samarkand, Panjikent and Varaksha are located today in Soviet Central Asia. Ancient Samarkand (present-day Afrasiab) and Varaksha are in Uzbekistan and Panjikent is in Tajikistan, two of the five Central Asian Soviet Republics, the other three being Kazakhstan, Kirgizia and Turkmenistan. This area has been referred to

as either Middle Asia, Western Turkestan or Transoxiana.¹¹²

In Chinese Central Asia, as far back as the second century B.C., there was intermingling between nomadic tribes and Chinese rulers in Sinkiang, with power continually oscillating between the two groups. Between the end of the Han and the establishment of the T'ang Dynasty, historical events are obscure. In China itself between 300 and 600, no house ruled as a single acknowledged dynasty for more than two decades. In the fifth century, a northern tribe of nomads invaded China and extended their influence over the Tarim Basin, starting with the Turfan region. In the sixth century, the Tarim Basin was ruled by Turkish Chaghans who controlled the traffic and exchange of commercial goods on the routes leading to the West. Tibetans invaded on and off in the seventh and eighth centuries. The area came under Chinese rule during the T'ang Dynasty, in about 647-648, but in 680, the eastern Turks founded an empire independent of China. They were in turn overrun by the Uighurs in 745, who, by the ninth century, were the predominant power in Chinese Central Asia.¹¹³

The early history of Soviet Central Asia is murky also, but there is more information regarding the early Middle Ages. Ancient Samarkand, Varaksha and Panjikent

were part of the state of Sogdiana, bordered by the Jaxartes (Syr Darya) and Oxus (Amu Darya) rivers. Sogdiana also included, to the southeast, part of the Ferghana Valley, which stretches through Uzbekistan, Tajikistan and Kirgiza. At one time or another, the area near the present day city of Mary in Turkmenistan was also a part of the state.¹¹⁴

Sogdiana is mentioned in contemporary documents as early as the sixth century B.C. when it was governed by the Persian kings of the Achaemenid dynasty. Representations of a group of Sogdians, making offerings to the sovereign, appear in the reliefs at Persepolis. During Parthian times little is known about Sogdiana. It was part of the Sasanian empire, under a royal governor for about one century. In the following centuries it fell under the sovereignty of foreign peoples, among whom were the Hephthalites and Turks. From the fifth century A.D. until the Arab conquest in the eighth century, Samarkand was the capital of the state. Archaeological evidence supports the rapid growth of the capital and an overall flowering of Sogdian cities in the seventh century. In the second half of that century, Sogdiana succeeded in gaining its independence and establishing numerous colonies. Vargoman established a nominal dependency with local princes, among whom were sovereigns of Turkish

descent from the T'ang dynasty.¹¹⁵

The seventh century also saw the Arab onslaught in the Sogdian area successfully resisted in some areas and succumbed to in others. Small local principalities came into existence for shorter or longer periods of time. One resistance fighter in the early eighth century was the last ruler of Panjikent, a chieftain named Dewastic who took refuge at Mount Mugh, about forty miles to the east of Panjikent. Excavations at his castle carried out in 1933 provided the first primary sources for Sogdian history found within the borders of ancient Sogdiana. Previously-discovered documents in Sogdian had been found only outside of Sogdiana's borders, at sites along the old Silk Route.¹¹⁶

From the beginning of the fourth century A.D. there is proof of an active Sogdian role in commerce on the old Silk Route. The "Ancient Sogdian Letters," a collection of nine documents found in a watchtower of the Great Wall of China, show that Sogdian colonies, maintaining permanent relations with metropolitan Samarkand, flourished in Eastern Turkestan and China.¹¹⁷ In fact, there is strong evidence that Sogdian was the prominent, if not official language among the Uighurs of Mongolia sometime between the sixth and ninth centuries. Two inscriptions in Sogdian point to the prominence of the

language in the area. One was found at Bugut, in Central Mongolia and has been dated to around 580. The other was found at Qarabalgasun, the capital of the Uighurs or Eastern Turks. It is trilingual, in Sogdian, Chinese and Uighur Turkish and dates from around 820. Further proof of the prominence of the Sogdian language is the fact that it was the basis for one of the alphabets in which the Uighur language was recorded in the second half of the sixth century. At around that same time, shortly after 565, the first ruler of the Western Turks, whose realm included Sogdiana, used Sogdians as his representatives to the Sasanian court in Iran and Byzantium for the purpose of discussing commercial relations.¹¹⁸

Another Sogdian inscription, discovered in 1959, establishes Sogdiana as a textile-producing center and is therefore most relevant to this study. On the back of a textile known as the Ram Silk, located in the Collegiate Church of Notre Dame, Huy, Belgium, a one-word inscription reads "Zandaniji," in a seventh-century style Sogdian script. Referring to the town of Zandane, near Bukhara, "Zandaniji" described the fine cloth produced in that town. Based on stylistic and technical comparisons to the Ram Silk in Huy, Dorothy Shepherd and Anna Jeroussalimskaja compiled a group of 102 previously

unidentified or misidentified textiles as "Zandaniji" and established a chronology from the seventh through the ninth centuries.¹¹⁹ Shepherd pointed out that Arab historians gave glowing accounts of the weaving industry in Sogdiana in Islamic times and that "there is every reason to believe that it had enjoyed an uninterrupted development from pre-Islamic times."¹²⁰

Attribution of the Extant Textiles

Evidence regarding the earliest possible dates of manufacture for textiles patterned with pearl roundels joined by smaller pearl discs points to the mid-seventh century or just thereafter. The archaeological evidence from three tombs at Astana provide termini post quem of 661, 663, and 665.¹²¹ Based on the dates of the rule of Vargoman and his successors, the wall-painting depicting the arrival of the foreign missions at ancient Samarkand can be securely dated to sometime before 655 and no later than 675.¹²² The dating of the wall-paintings from Panjikent and Varaksha depicting textiles patterned with pearl roundels joined by smaller pearl discs is less precise than at Samarkand, and therefore doesn't help towards establishing a terminus ante quem, but their rather broad dating to the first half of the eighth century does not create a conflict with a terminus ante quem of 650-660.¹²³

The lack of representation of textiles patterned with pearl roundels joined by smaller pearl discs at monuments dated to before the second half of the seventh century¹²⁴ further supports the terminus ante quem of 650-660. The rock reliefs and stone capitals at Taq-i-Bustan dated to the reign of Khosro II (590-628) show figures wearing garments whose designs bear a

relationship to Sasanian royal iconography, but none of the patterns show repeats of pearl roundels joined by smaller pearl discs.¹²⁵ Based on stratigraphic grounds, a wall-painting at Panjikent depicting the Rustam cycle is dated to the early seventh century.¹²⁶ Garments with borders bearing pearl roundels are depicted, but there are no smaller pearl discs at their tangential points. Another excavation site in Soviet Central Asia, Balelik Tepe, is dated less precisely, to the sixth or seventh century.¹²⁷ Wall-paintings discovered there show figures wearing garments decorated with pearl roundels bearing a variety of motifs,¹²⁸ but again, they are not joined at their tangential points by smaller pearl discs.

Evidence for a terminus post quem for this group of textiles is less forthcoming. The Hermitage caftan, dated by archaeological evidence to the eighth or ninth centuries, is the latest securely-dated textile.¹²⁹ Muthesius's dating of the Saint Rémi monochrome pieces to around the year 1000 is the latest suggested date offered.¹³⁰

Evidence of provenance for the textiles is also far from conclusive, but a number of facts point to Sogdiana as the most-likely place of production. The exclusive representation of textiles patterned with pearl roundels joined by smaller pearl discs in wall-paintings in the

three Sogdian cities of Samarkand, Varaksha, and Panjikent provides the strongest evidence.¹³¹ Further support is supplied by the Zandaniji textiles, identified by Shepherd, which established Sogdiana as a silk-weaving center.¹³² Whether original Sogdian textiles patterned with pearl roundels joined by smaller pearl discs were copied in other silk-weaving centers, or whether perhaps the Sogdians produced their own copies, is not known. A comparative technical analysis of all the eighteen textiles in the group could perhaps provide that answer. It should be noted that the T'ang Dynasty controlled the Turfan area only from 647-648 until 680. Evidence of Sogdian influence in the area is witnessed by its once-flourishing colonies in Chinese Central Asia and the dominance of the Sogdian language in the area from the late sixth century to the early ninth century.¹³³

Stylistic Origin of the Textiles

Varieties of discrete pearl roundel patterns are common in Coptic, Indian and Chinese textiles,¹³⁴ as well as Sasanian and Central Asian stucco and metalwork.¹³⁵ After looking at the above eighteen textiles and the representations of such textiles in wall-paintings in Central Asia, it becomes clear that the single common characteristic that makes this group unique is the smaller pearl discs at the tangential points. Why do these smaller pearl discs appear exclusively in this relatively small group of textiles? Could they be the clue to provide more precise attributions of dating and provenance? Can they tell us something about a common stylistic or iconographic origin for this textile pattern?

Looking at the pearl roundels of so-called Sasanian silks and stucco, Robert Göbl, the numismatist, noticed a similarity between their pearl roundel borders and the borders of Sasanian coins. In fact, Göbl claimed that the borders of the Sasanian silks and stuccos were derived from Sasanian coins.¹³⁶ Göbl pointed to the development of a double border in Sasanian coins beginning with the reign of Valash (484-488) (fig. 25.). In the reign of Kavid I (488-497 and 499-531), astral symbolism, in the form of crescents and stars, appeared outside the double

border (fig. 26.). These coins were not minted in silver and were rare in copper, but as drachmas they were widespread throughout the Sasanian empire.¹³⁷ The format of roundel with astral symbols at the four directional points continued to be the preferred format for coins minted by the Sasanian kings until the end of the dynasty in 651 with Yazdgard III (fig. 27.).¹³⁸ This style of Sasanian coins which were discovered in abundance at the archaeological sites discussed above,¹³⁹ was copied by post-Sasanian dynasties¹⁴⁰ and influenced the style of a Chinese T'ang mirror (fig. 28.).¹⁴¹

Göbl's recognition of Sasanian coins as the stylistic source for pearl roundels in silks and stucco deserves consideration. However, Göbl did not differentiate between the discrete pearl roundel pattern of the stuccos and the linked pearl roundel pattern of the silks. In addition to the similarity of the double borders of Sasanian coins to the main pearl roundels of silks and stuccos, there is also a relationship between the astral symbols located at the four directional points on the coins, and the smaller pearl discs located at the tangential points of the main pearl roundels on the woven textiles. A repeat system in weaving on a drawloom¹⁴² results in the mirror-reflections of motifs. If the image of a double border and crescents at four cardinal points

on a coin is repeated, the result appears as main roundels joined by smaller roundels or disc shapes. The smaller discs are the result of the mirror-reflections of the half-circle crescents (fig. 29.).

Further evidence supporting a theory of Sasanian coins as the stylistic source for this group of textiles is provided by the stag *fu-mien* in China with the puzzling motif in its smaller pearl discs (fig. 17.). Its two horizontal pearl discs enclose a circle which in turn surrounds a square. Circular coins with square holes punched in their centers were common Chinese exchange from the Chou dynasty (1122-225 B.C.) until the seventeenth century (fig. 30.). They were found in abundance at the excavations in Astana.¹⁴³

It has been suggested that roundel formats were used as a kind of stencil-form in textile production throughout the Near East. To suit current fashion and market demands, the textile-designer would simply change the decorating motifs inside a pre-arranged format of roundels.¹⁴⁴ Since there is a variety of animals represented inside the main pearl roundels of the textiles in this group, the theory may pertain, but does it apply to the smaller pearl discs also? Could the answer be significant in attempting to discover the origins of this textile pattern? Only three decorating

motifs appear inside the smaller pearl discs in the textiles in this study. Mostly, there are single crescents or a multiple of crescents. There are two examples of a plain, undecorated space and one example where the decoration appears to be a copy of a round Chinese coin with a square hole punched in the middle (Appendix 2 Table A.). This limited number of motifs inside the smaller pearl discs points to the assumption that they were not used to enclose a variety of motifs. The fact that crescents and mirror-reflections of crescents are practically the exclusive small pearl disc decoration is indicative of their adaption from the astral symbolism at the four cardinal points on Sasanian coins.

Suggestions for Future Research

This study has attempted to show that the eighteen published textiles patterned with repeat systems of pearl roundels joined by smaller pearl discs at the tangential points and the depictions of such textiles in wall-paintings in Central Asia form a group based on a number of common characteristics (Appendix 2, Tables A-C.). Archaeological excavations carried out since 1959 have provided evidence supporting a terminus ante quem of 650-660¹⁴⁵ and the state of Sogdiana as the most-likely original provenance. The source of the pattern appears to be Sasanian coins, whose adaptation to the technique of drawloom weaving created a repeat pattern of main pearl roundels joined by smaller pearl discs.

Many questions remain concerning this group of textiles. Assuming they share the same stylistic source, do they also share a common iconography? If so, was it understood in cultures as different as T'ang China and early medieval Europe? In his book, Studies on the Iconography of Cosmic Kingship in the Ancient World, L'Orange convincingly demonstrates how pervasive astral symbolism was in cultures as different as Achaemenid Persia and early Christian Europe.¹⁴⁶ Was astral symbolism recognized in these textile patterns, or was an original meaning lost in the adaptation from coin to

textile repeat pattern? If the textiles were produced in Sogdiana, how did they reach the geographically-distant places where they have been found? Were they traded or were they copied in local weaving centers? Did the pattern influence future textile design, and if so, where and how?

With respect to the last question above, it should be noted that textiles patterned with repeat systems of main roundels joined by smaller roundels or discs at the tangential points are familiar in so-called Byzantine, Islamic and Spanish textile design.¹⁴⁷ Their main roundels and smaller discs are decorated with floral and geometric patterns showing various degrees of stylization (fig. 31, 32.).¹⁴⁸ Many show a combination of pearls and floral or geometric decoration (fig. 33-35.).¹⁴⁹ For the most part, they have not been firmly dated or assigned provenances.¹⁵⁰ Could textiles showing repeat patterns of pearl roundels joined by smaller pearl discs have been a prototype for repeat patterns of floral and geometric roundels joined by smaller floral and geometric discs?¹⁵¹ The answer is certainly outside the confines of this thesis, but this direction for future research is strongly suggested.

1. The museums and church treasuries in the United States and Europe which own these textiles are: The Museo Sacro in the Vatican, The Louvre in Paris, The Musée Historique des Tissus in Lyon, The Victoria and Albert Museum in London, The Eglise Saint Rémi in Reims, The Hermitage Museum in Leningrad, and The Textile Museum in Washington D.C. See notes 16-20 for documentation.

This thesis addresses only the specific type of pearl roundel pattern showing main pearl roundels joined by smaller pearl roundels at the tangential points. In the interest of distinction and clarity, the smaller pearl roundels are referred to as pearl discs. The repetition of discrete pearl roundels, a related type of textile patterning, is not discussed in this thesis.

2. The smaller pearl discs in the textile fragment in The Textile Museum in Washington D.C. are left undecorated. See Carol Bier, "Textiles," The Royal Hunter: Art of the Sasanian Empire ed. Prudence Harper ([New York]: Asia Society, 1978) fig. 59.

3. For examples of animal motifs and framing devices in Sasanian and post-Sasanian stucco, see Roman Ghirshman, Iran: Parthians and Sasanians trans. Stuart Gilbert and James Emmons, (n.p.: Thames and Hudson, 1962) fig. 227, 229, 232, 239-240; Jens Kroger, "Stucco," The Royal Hunter: Art of the Sasanian Empire ed. Prudence Harper ([New York]: Asia Society, 1978) fig. H, 43-44, 46-47, 49-50. For examples in metalwork, see Ghirshman fig. 241, 243, 244-257, 259-263, 266 and Prudence Harper, ed., The Royal Hunter: Art of the Sasanian Empire ([New York]: Asia Society, 1978) 24-100.

Using representations in "Sasanian" metalwork as examples of a Sasanian style is, in itself, an inaccurate method. The dating of Sasanian metalwork has been questioned by some scholars. See Leigh Ashton, "A New Group of Sassanian Textiles," Burlington Magazine 66.66 (1935) 29 and Tamara Talbot Rice, Ancient Arts of Central Asia (New York: Praeger, 1965) fig. 100.

4. Prior to World War II, some of the scholars who presented these pieces are: Otto von Falke, Kunstgeschichte der Seidenweberei vol. 1 (Berlin: Ernst Wasmuth, 1913) 38-41, 78-81, fig. 49, 96, 99-100; Ernst Herzfeld, Am Tor von Asien (Berlin: D. Reimer, 1920) 125-136, fig. 62, 63; F. Sarre, Die Kunst des Alten Persen (Berlin: B. Cassirer, 1922) 49-51, fig. 95; A. F. Kendrick, Catalogue of Early Medieval Woven Fabrics (London: n.p. 1925) 12-13, pl. 1; Phylliss Ackerman, "Textiles through the Sasanian Period," A Survey of

Persian Art vol. 2, ed. Arthur Upham Pope (London: Oxford UP, reissue 1964-65, original ed. 1938-39) 681-715; Arthur Upham Pope, ed., A Survey of Persian Art vol. 7 (London: Oxford UP, reissue 1964-65, original ed. 1938-39) fig. p. 200, B-C, p. 202.

The scholars since World War II who have discussed these textiles will be presented in more detail in the main text of this thesis.

5. For reproductions of the rock sculpture at Taq-i-Bustan, see Ghirshman fig. 233-238. For reproductions showing details of the textile patterns in garments at Taq-i-Bustan, see Elsie Holmes Peck, "The Representation of Costumes in the Reliefs of Taq-i-Bustan," Artibus Asiae 31.2-3 (1969) pl. 2-19.

6. Bier, "Sasanian Textiles: A Critical Review," MA thesis, NYU, 1977, 36-39 and Bier, "Textiles," The Royal Hunter 122.

7. For reconstructions and reproductions of the Soviet murals showing textiles patterned with pearl roundels joined by smaller pearl discs, see Guitty Azarpay, Sogdian Painting: The Pictorial Epic in Oriental Art (Berkeley: U of California P, 1981) fig. 50-52, pl. 21, 29-30; Benjamin Rowland, The Art of Central Asia (New York: Crown, 1974) fig. 43, 73; Talbot Rice, fig. 98 and V. A. Shiskin, Varaksha (Moscow: 1963) pl. III, XV-XVI.

8. Krishna Riboud, "A Newly Excavated Caftan from the Northern Caucasus," Textile Museum Journal 4.3 (1976) 21-42; Anna Jeroussalimskaja, "Novaya nohodke tak nazieraemoro sassanidskovo shelka s senmurvami," Gosudarstvenny i Ermitazh 34 (1972) 11-15 and Anna Jeroussalimskaja, "Le Cafetan aux Simourghs du Tombeau de Mochtchevaja Balka (Caucase Septentrional)," Studia Iranica (1978) 183-211.

9. The Chinese fragments are reproduced and discussed in Michael Meister, "The Pearl Roundel in Chinese Textile Design," Ars Orientalis 8 (1970) 264-265, fig. 31-33; Krishna Riboud, "Some Remarks on the Face-Covers (Fu-Mien) Discovered in the Tombs of Astana," Oriental Art 4.3 (1976) 438-454, fig. 11, 13-14; Hsin-chiang Wei-wu-erh tzu-chih-ch'ü po-wu-kuan, ed., Ssu-ch'ou chih-lu. Han-T'ang chih-wu. [The Silk Road. Han and T'ang Textiles], (Peking: Wen Wu, 1972) fig. 33, 35, 38; Hsin-chiang Wei-wu-erh tzu-chih-ch'ü po-wu-kuan, ed., Hsin-chiang ch'u-t'u wen-wu. [Objects Excavated from Sinkiang], (Peking: Wen Wu, 1975) fig. 141-143 and Chung-

Kuo mei-shu ch'üan-chi. Kung-i-mei-shu pien. [Complete Collection of Chinese Art: Decorative Art], vol. 6 (Peking: Wen Wu, 1985) 52, 60-62, fig. 120, 143, 147-148, 150.

10. Riboud, "Caftan," 28; Riboud "Face-Covers," 451; Bier, The Royal Hunter 125, 132, 134, 136; Wilson, A History of Textiles (Boulder, Colorado: Westview P, 1979) 117; Krishna Riboud and Gabriel Vial, "Quelques considérations techniques concernant quatre soieries connues," Documenta Textilia: Festschrift für Sigrid Müller-Christensen (Munich: Deutscher, 1981) 140, 142 and Michael Meister, "Silk Technology and Central Asia," Kusmanjali: New Interpretation of Indian Art and Culture ed. M. S. Nagaraja Rao, vol. 1 (Delhi: Agam Kala Prakashan, 1987) 93-94.

11. Talbot Rice, 92-115 and Rowland, 160.

12. Ghirshman, 228-230; Agnes Geijer, "A Silk from Antinoe and the Sasanian Textile Art," Orientalia Suecana 12 (1963) 21-26, 30-31; Cyril Bunt, Byzantine Fabrics (Leigh-on-Sea, England: F. Lewis 1967) 7-9; W. Fritz Volbach, Early Decorative Textiles trans. Yuri Gabriel, (Feltham, Middlesex: Hamlyn, 1969) 55, 105 and Marielle Martiniani-Reber, Lyon, Musée Historique des Tissus: Soieries Sasanides, Coptes et Byzantines V-XI Siècles (Paris: Ministère de la Culture et de la Communication, 1986) 11-12.

13. Chung-Kuo mei-shu ch'üan-chi. 52, 60-62, fig. 120, 143, 147-148, 150; Hsin-chiang ch'u-t'u wen-wu 99-101, fig. 141-143, and Ssu-ch'ou chih-lu. fig. 33, 35.

14. Muthesius pointed out the importance of "a broader basis of enquiry" in the study of Byzantine silk weaving. Scientific and technical analyses, in addition to stylistic and iconographic approaches could provide a basis for groupings and chronologies of historical textiles. See Anna Muthesius, "A Practical Approach to the History of Byzantine Silk Weaving," Jahrbuch der Österreichischen Byzantinistik 24 (1984) 235.

15. See Gabriel Vial, appendix A, C, "A Newly Excavated Caftan from the Northern Caucasus," by Krishna Riboud Textile Museum Journal 4.3 (1976) 40-41 for technical information on the caftan in the Hermitage, the Saint Leu fragment in the Musée des Arts Decoratifs and the two Saint Rémi pieces in Reims. For a fiber analysis of the caftan in the Hermitage and the Saint Leu fragment

in the Musée des Arts Decoratifs, see H. Meyer, appendix B, "A Newly Excavated Caftan from the Northern Caucasus," by Krishna Riboud Textile Museum Journal 4.3 (1976) 41. See Felix Guicherd, analyse I, "Quelques considérations techniques concernant quatre soieries connues," by Krishna Riboud and Gabriel Vial Documenta Textilia: Festschrift für Sigrid Müller-Christensen (Munich: Deutscher, 1981) 150-151 for an analysis of the Saint Leu fragment in the Musée des Arts Decoratifs. See M. M. El-Homossani, "Creating a Protocol for Reconstructing Weaving Technologies: Early Compound Non-Silk Fabrics Found in Egypt," Textiles as Primary Sources: Proceedings of the First Symposium of the Textile Society of America Minneapolis Institute of Art. Sept. 1988 (The Textile Society of America, 1988) 26-39 for a technical analysis relating to the long-legged bird fragment in The Textile Museum in Washington D.C.

Catalogue entries with some technical information are found for the piece in The Textile Museum in Bier, "Textiles," The Royal Hunter 134-135 and for the pieces in China in Ssu-ch'ou chih-lu. fig. 33, 35, 38; Hsin-chiang ch'u-t'u wen-wu. fig. 141-143 and Chung-Kuo mei-shu ch'üan-chi. 52, 60, 61-62, fig. 120, 143, 147-148, 150.

16. The Textile Museum in Washington D.C. See Bier, "Textiles," The Royal Hunter 134-135, fig. 59.

17. The Museo Sacro in the Vatican, see Ghirshman, 230, 392, fig. 279 and Volbach, 52, fig. 23; The Musée Historique des Tissus in Lyon and The Louvre in Paris, see Ghirshman, 229, 392, fig. 278, Geiger, "A Silk from Antinoe," 6-8, 21-26, 30-31, fig. 12, Bier, "Textiles," The Royal Hunter 132, fig. 56, Riboud and Vial, "Quatre Soieries," 129-130, 137-140, 142, fig. 1 and Martiniani-Reber, 45-46, fig. 11, fig. p. 27; The Victoria and Albert Museum in London and The Musée des Arts Decoratifs in Paris, see Ghirshman, 228, 390, fig. 275, Talbot Rice, 99, Volbach 52, fig. 21, Bier, "Textiles," The Royal Hunter 136, fig. 60, Riboud, "Caftan" 26-42, fig. 5-7 and Bunt, fig. 5; The Eglise Saint Rémi in Reims, see Riboud, "Caftan," 26-42, fig. 8-9.

18. The Hermitage in Leningrad, see Jeroussalimskaja, "Novaya nohodke," 11-15; Jeroussalimskaja, "Le Cafetan aux Simourghs," 183-211 and Riboud, "Caftan," 21-42, fig. 1-4.

19. The New Delhi Museum in New Delhi, see Ghirshman, 230, 390, fig. 281; Talbot Rice, 111, 114, 274, fig. 97; Meister, "Pearl Roundel," 264, fig. 30 and Riboud, "Face-Covers," 440, fig. 12.

20. The Museum of Uighur Autonomous Region. See Meister, "Pearl Roundel," 264, fig. 31-33; Riboud, "Face-Covers," 451, fig. 11, 13-14; Ssu-ch'ou chih-lu, fig. 33, 35, 38; Hsin-chiang ch'u-t'u wen-wu, fig. 141-143 and Chung-Kuo mei-shu ch'üan-chi, 52, 60, 61-62, fig. 120, 143, 147-148, 150. and Wu Min, "Hsin-chiang ch'u-t'u Han-T'ang ssu-chih-p'in ch'u-t'an," [Preliminary Investigation of Han to T'ang Textiles from Sinkiang], Wen Wu 7-8 (1962) 66, fig. 17.

21. The terms used in this thesis are defined in Centre International D'étude des Textiles Anciens, Vocabulary of Technical Terms (Lyon: Centre International D'étude des Textiles Anciens, 1964).

Three of the Chinese stag silks are published without weave structure information. See notes 81, 83-84.

22. The fragment with an exceptional small disc motif is a stag silk fragment in The Museum of Uighur Autonomous Region, Sinkiang. See note 85.

23. The Chinese fragments that are published without fabric information are two of the stag silks. See notes 81 and 83. For sources of the eighteen extant textiles, see notes 16-20.

24. For a clear and concise discussion of symmetry operations, see Verda Elliott, "Seventeen Pattern Types: A Study of Repeat Pattern in Two Dimensions," Complex Weavers Sept. (1987) 23-30.

25. Bier, "Textiles," The Royal Hunter 134-135, fig. 59.

26. Bier, "Textiles," The Royal Hunter 135, and The Textile Museum, Washington D.C., collection card 73.341, 73.555.

27. Bier, "Textiles," The Royal Hunter 135.

28. Bier, "Textiles," The Royal Hunter 135.

29. Ghirshman, 230, 392, fig. 279 and Volbach, 52, 105, fig. 23.

30. Ghirshman, 230, 392, fig. 279.
31. Volbach, 52, 104-105, fig. 23.
32. Meister, "Silk Technology," 94.
33. Ghirshman, 229, 392, fig. 278; Bier, "Textiles," The Royal Hunter 132, fig. 56; Geijer, "A Silk from Antinoe," 31, fig. 12; Riboud and Vial, "Quatre Soieries," 129-130, 137-140, 142, fig 1 and Martiniani-Reber, 45-46, fig. 11, fig. p. 27.
34. See Geiger, "A Silk from Antinoe," 6-8 for a brief summary of claims made by Gayet and textile historians before World War II and 21-26, 30-31 for her attribution. See also Ghirshman, 229, 392, fig. 278.
35. Bier, Textiles, " The Royal Hunter 132.
36. Riboud and Vial, "Quatre Soieries," 142.
37. Martiniani-Reber, 46.
38. Ghirshman, 228, 390, fig. 275; Talbot Rice, fig. 99; Bunt, fig. 5; Volbach 52, fig. 21; Riboud, "Caftan," 27-28, 30-31, 34, 36-37, 41-42, fig. 5-6 and Bier, "Textiles," The Royal Hunter 136, fig. 60.
39. See Elliott, 26-29 for motif diagrams of the seventeen symmetry operations.
40. Ghirshman, 228. Volbach, 52 also stated that this piece is from the reliquary of St. Leu, but Talbot-Rice, 274 claimed it was found in the reliquary of the head of St Helena. See John Coulson ed. Dictionnaire Historique des Saints (Paris: Société d'édition de dictionnaires et encyclopédies, 1964) 247 for the date of death of St. Leu in the year 623.

Relying on the consecration of Saints for dating purposes is inaccurate methodology. The remains of Saints were displayed for veneration, at which time their shrouds were often replaced. See John Beckwith, "Byzantine Tissues," Actes du XIV Congrès International des Etudes Byzantines: Bucarest, 6-12 Septembre 1971 (Bucharest: Editura Academiei Republicii Socialiste Romania, 1974) 344.
41. Ghirshman, 228, 390; Bunt, fig. 5 and Talbot Rice, 274, fig. 99.

42. Riboud, "Caftan," 28.
43. Bier, "Textiles," The Royal Hunter 136.
44. Wilson, 117.
45. Riboud, "Caftan," 27-28, 30-31, 36-37, fig. 8-9.
46. Riboud, "Caftan," 28.
47. Muthesius, personal interview, 17 Sept., 1990.
48. Riboud, "Caftan," 21-42, fig. 1-4.
49. Elliott, 26.
50. Riboud, "Caftan," 24.
51. Anna Jeroussalimskaia, "Novaya nohodke," 11-15.
52. Riboud, "Caftan," 24.
53. Riboud, "Caftan," 28.
54. Ghirshman, 231, 392, fig. 281; Geiger 31, fig. 13; Talbot-Rice, 111-112, 114, 274, fig. 97; Meister, "Pearl Roundel," 264, fig. 30 and Riboud, "Face-Covers," 438-440, 451, fig. 12.
55. Meister, "Pearl Roundel," 264.
56. Sir Aurel Stein, Innermost Asia vol. 2 (Oxford: Clarendon, 1928) 674-675 and Riboud, "Face-Covers," 438-439.
57. Stein, 674.
58. Ghirshman, 392; Talbot-Rice, 112, 274, fig. 97.
59. Meister, "Pearl Roundel," 264.
60. Riboud "Face-Covers," 451.
61. See note 20.
62. See Riboud, "Face-Covers" 454, note 4 for citations of the Chinese journals where excavation reports were first published.

63. Meister, "Pearl Roundel," 264-265, fig. 31-33 and Riboud, "Face-Covers," 440, 451, fig. 11, 13.

64. Riboud, "Face-Covers," 440-441, 443-445, 451, fig. 1A, 1B.

65. See notes 16-18, 20.

66. Five of the eight textile fragments in China are reproduced in color in Ssu-ch'ou chih-lu. fig. 33 35, 38; Hsin-chiang ch'u-t'u wen-wu. fig. 120, 143, 147-148, 150 and Chung-Kuo mei-shu ch'üan-chi. fig. 141-142.

The brown and black colors of the New Delhi Museum's boar's head textile excavated by Stein at Astana would appear to be an exception to the Astana-group colors. However, the dark colors may result from the fading of once bright colors. In fact, a number of the Chinese-excavated pieces are faded to yellow-brown and blue-black. For color reproductions of the New Delhi Museum boar's head see Ghirshman fig. 281 and Talbot Rice, Central Asia fig. 97.

67. See Riboud, "Face-Covers," 440, 454, note 12 for a brief technical description of the weave structure of the angular-style New Delhi boar's head fragment.

68. Meister, "Pearl Roundel," 264, fig. 31; Riboud, "Face-Covers," 451, fig. 13; Hsin-chiang ch'u-t'u wen-wu, fig. 143 and Chung-Kuo mei-shu ch'üan-chi, 61, 156, fig. 148.

69. Chung-Kuo mei-shu ch'üan-chi. 61.

70. Elliott, 26.

71. Meister, "Pearl Roundel," fig. 31.

72. Hsin-chiang ch'u-t'u wen-wu fig. 143 and Chung-Kuo mei-shu ch'üan-chi. 61, 156, fig. 148.

73. Hsai Nai, "Hsin-chiang hsin-fa-hsien ti ku-tai ssu-chi'h-p'in," [New Finds of Ancient Silk Fabrics in Sinkiang], K'ao-ku hsüeh-pao 1 (1963) 76.

74. Ssu-ch'ou chih-lu. fig. 33, 35, 38; Hsin-chiang ch'u-t'u wen-wu. fig. 141-143 and Chung-Kuo mei-shu ch'üan-chi. 52, 60-62, fig. 120, 143, 147-148, 150.

75. Meister "Pearl Roundel," 264, fig. 31.

76. Riboud, "Face-Covers," 451.
77. Riboud, "Face-Covers," 451, fig. 14; Ssu-ch'ou chih-lu. fig. 38 and Chung-Kuo mei-shu ch'üan-chi., 61, 156, fig. 147.
78. Ssu-ch'ou chih-lu. fig. 38 and Chung-Kuo mei-shu ch'üan-chi. 61, 156, fig. 147.
79. Riboud, "Face-Covers," 451.
80. Ghirshman, 390-391, fig. 241, 247, 252, 254 and Harper, 34-35, fig. 4.
81. Meister, "Pearl Roundel," 264, fig. 33.
82. Ssu-ch'ou chih-lu. fig. 35 and Chung-Kuo mei-shu ch'üan-chi. 52, fig. 120.
83. Wu Min, 66, fig. 17.
84. Ssu-ch'ou chih-lu. fig. 33.
85. Hsin-chiang ch'u-t'u wen-wu. fig. 142 and Chung-Kuo mei-shu ch'üan-chi. 61, fig. 150.
86. Meister, "Pearl Roundel," 264, fig. 32; Riboud, "Face-Covers," 451, fig. 11; Hsin-chiang ch'u-t'u wen-wu. fig. 141 and Chung-Kuo mei-shu ch'üan-chi. 153, fig. 143.
87. Meister, "Pearl Roundel," fig. 32 and Chung-Kuo mei shu ch'uan chi. 60, fig. 143.
88. Hsin-chiang ch'u-t'u wenwu. fig. 141; Chung-Kuo mei-shu ch'üan-chi. 153, fig. 143; Meister, "Pearl Roundel," 264 and Riboud, "Face-Covers," 451.
89. See note 7.
90. The wall-painting is dated according to an inscription. See A. M. Belinitiskii and B. I. Marshak, "The Paintings of Sogdiana," Sogdian Painting: The Pictorial Epic in Oriental Art ed. Guitty Azarpay (Berkeley: U of California P, 1981) 47-48.
91. See note 7.
92. See notes 3 and 5.
93. Azarpay, 116-119, fig. 51.

94. Belinitskii and Marshak, 47-48.
95. Ira Block, personal interview, 22 Jan. 1990.
96. Azarpay, fig. 50, 52.
97. Azarpay, pl. 21.
98. Azarpay, 186.
99. Azarpay, pl. 29-30.
100. Talbot Rice, 96 and Azarpay, 201.
101. Shishkin, pl. 15-16 and Talbot Rice, fig. 98.
102. Talbot Rice, 110.
103. Shishkin, pl. 3.
104. Belinitskii and Marshak, 49.
105. Rowland, 164, pl. p. 160 and H. Hartel and M. Yaldiz, Die Seidenstrasse (Berlin: Dietrich Reimer, 1987) 64, fig. 10.
106. Sir Aurel Stein, On Central Asian Tracks (London: Macmillan, 1933; New York: AMS Press, 1971) 282 and Rowland, 164. See The Metropolitan Museum of Art, Along the Ancient Silk Routes: from the West Berlin State Museums (New York: The Metropolitan Museum of Art, 1982) 33-39 for a description of Le Coq's 1904-1905 expedition.
107. Rowland, 164.
108. Rowland, 160.
109. The Metropolitan Museum of Art, 18.
110. Talbot Rice, 9-10; Rowland, 15-26; For primary sources see, Richard N. Frye, The History of Bukhara trans. from a Persian Abridgement of the Arabic Original by Narshakhi (Cambridge, Mass.: The Mediaeval Academy of America, 1954) and J. Harmatta, ed., Prolegomena to the Sources on the History of Pre-Islamic Central Asia (Budapest: Akademiai Kiado, 1979).
111. Riboud, "Face-Covers," 454, note 3 and The Metropolitan Museum of Art, 18.

112. Talbot Rice, 75 and Dresden, Sogdian Painting
13.
113. Riboud, "Face-Covers," 451-452 and The
Metropolitan Museum of Art, 18.
114. Mark Dresden, "Introductory Note," Sogdian
Painting: The Pictorial Epic in Oriental Art ed. Guitty
Azarpay (Berkeley: U of California P, 1981) 1, 2.
115. Talbot Rice, 75-76; Dresden, 2-5 and
Belinitiskii and Marshak, 15-19.
116. Dresden, 1-2 and Belinitiskii and Marshak, 18.
117. Dresden, 3.
118. Dresden, 9.
119. Dorothy Shepherd and W. B. Henning, "Zandaniji
Identified?," Aus der Welt der Islamischen Kunst:
Festschrift für Ernst Kühnel (Berlin: Gebr. Mann 1959)
15-40 and Shepherd, "Zandaniji Revisited," Documenta
Textilia: Festschrift für Sigrid Müller-Christensen
(Munich: Deutscher, 1981) 105-122.
120. Shepherd, "Identified?," 59.
121. See note 61.
122. Belinitiskii and Marshak, 47-48.
123. Azarpay, 186 and Belinitiskii and Marshak, 49.
124. Belinitiskii and Marshak, Sogdian Painting 47-
48.
125. Bier, "Critical Review," 20-21, pl. 6b.
126. Azarpay, 195.
127. Belinitiskii and Marshak, Sogdian Painting 49.
128. For reproductions of the wall-paintings at
Balelik Tepe, see Lazar Albaum, Balelik Tepe (Tashkent:
Akademii Nauk, 1960).
129. Riboud, "Caftan," 21.
130. Muthesius, personal interview, 20 Sept. 1990.

131. See note 7.
132. See note 119.
133. Dresden, 8-9 and The Metropolitan Museum of Art, 18.
134. For Coptic examples see R. Shurinova, Coptic Textiles: Collection of CT State Pushkin Museum of Fine Arts (Moscow: n.p., n.d.) fig. 70, 78, 92. For examples of Chinese and Indian textiles patterned with discrete pearl roundels, see Meister, "Pearl Roundel," fig. 1, 8, 12-18, 26-27, 39-40, 42-46.
135. For stucco decorated with pearl roundels, see Ghirshman, fig. 239 and Kroger, fig. 50. For metalwork showing pearl roundels, see Harper, The Royal Hunter fig. 13, 20, 24.
136. Robert Göbl, "Die Numismatik als Quelle zur Kunst der Sasaniden, der Kusan und der Iranischen Hunnen," Bulletin of the Asia Institute New series vol. 1 (1987) 69-70, fig. 19-23. Göbl reproduces the *senmurv* silk in the Musée des Arts Decoratifs in Paris.
137. Göbl, "Die Numismatik," 8-9, fig. 21-22.
138. Göbl, "Die Numismatik," 8-9 and Ghirshman, fig. 329. and Göbl, Sassanidische Numismatik (n.p.: Braunschweig, Klinkhardt and Bierman, 1968) pl. 11.
139. For examples of Sasanian coins found at Astana, see Stein, Innermost Asia vol. 3 (Oxford: Clarendon P, 1928) pl. 120; Hsin-chiang ch'u-t'u wen-wu. 133, fig. 193 and Kodai Oriento Hakubutsukan, ed., Chugoku Seiiki Shirukurodo ten. (Tokyo: Asahi Tsushinsha, 1986) fig. 42-43.
140. For copies of this style of Sasanian coins, see Oriental Coins and their Value: The Ancient and Classical World (London: Hawkins, 1978) fig. 1455-1456, 1483-1489.
141. See Göbl, "Die Numismatik," fig. 23 for the representation of a bronze Chinese T'ang mirror and Göbl, "Spiegel der T'ang-Zeit mit Sasanidischem Randdekor," Ex Orbe Religionum: Studia Geo Widengren Oblata vol. 2 (Leiden, Netherlands: E. J. Brill, 1972) 80-82 for a discussion of two Chinese T'ang mirrors whose decoration shows the influence of Sasanian coins.

142. For a brief description and history of the drawloom, see Geiger, A History of Textile Art (London: Pasold Research Fund and Sotheby Parke Bernet 1979) 97-102. See also, Riboud, "Face-Covers," 447.
143. Arthur Braddan Coole, Coins in China's History (Mission Kansas: Inter-Collegiate P., 1963) 32-58 and Stein, Innermost Asia vol. 3 pl. 120.
144. Louisa Bellinger, "Repeats in Silk Weaving in the Near East," Textile Museum Workshop Notes Nov. (1961) 1-4.
145. Belinitiskii and Marshak, 47-48.
146. H. P. L'Orange, Studies on the Iconography of Cosmic Kingship in the Ancient World (New Rochelle, New York: Caratzas Brothers, 1982).
147. See Volbach and Bunt for abundant examples.
148. Bunt, fig. 1, 3, 11.
149. Bunt fig. 25, 13.
150. Beckwith, 344.
151. Wilson, 107, states, "practically the entire evolution of textile design took place in silk weaving. Silk patterns became models for embroidery and textile printing as well as fabrics woven in other materials."

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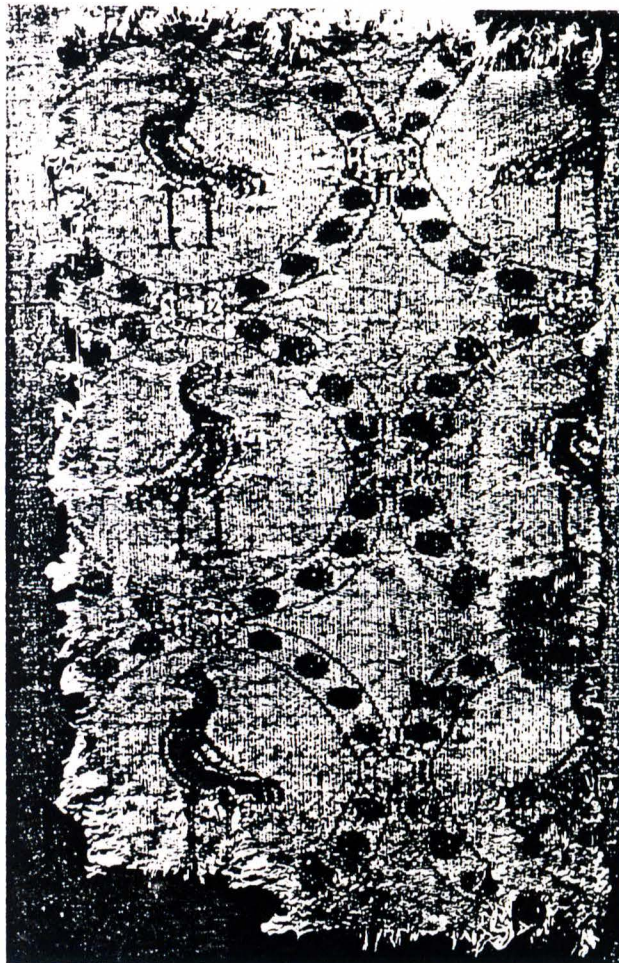


Fig. 1. Long-legged bird
cotton and wool
The Textile Museum,
Washington, D. C.
(source: Bier, "Textiles," The
Royal Hunter fig. 59.)

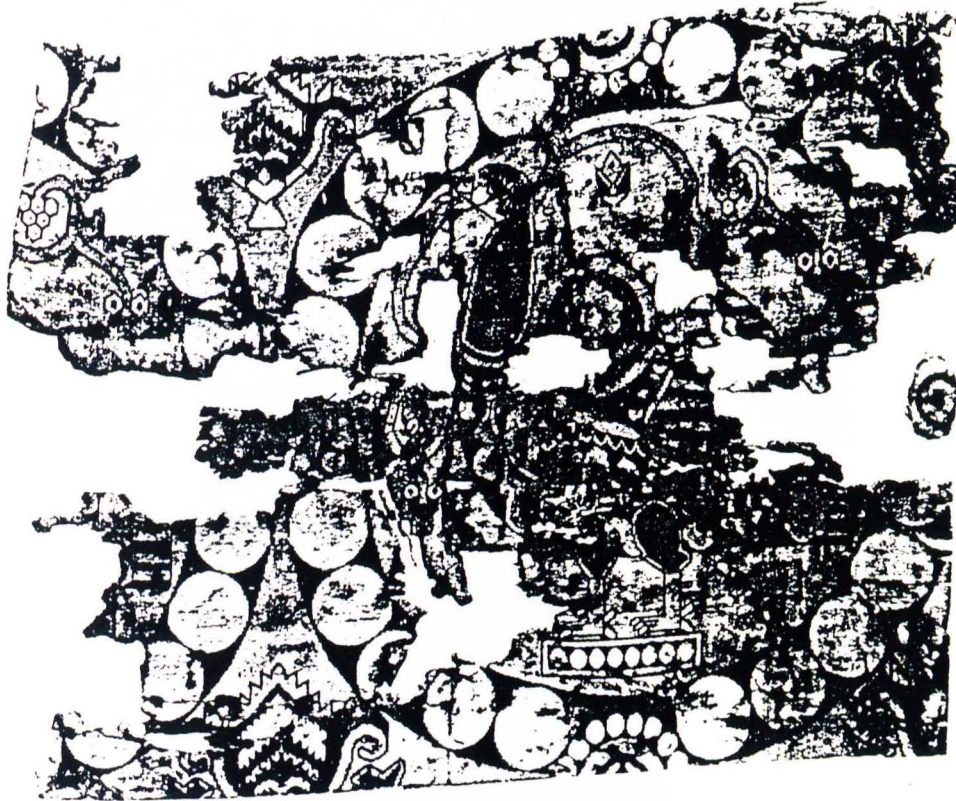


Fig. 2. Bird on plinth
silk
Museo Sacro, Vatican
(source: Volbach, fig. 23.)

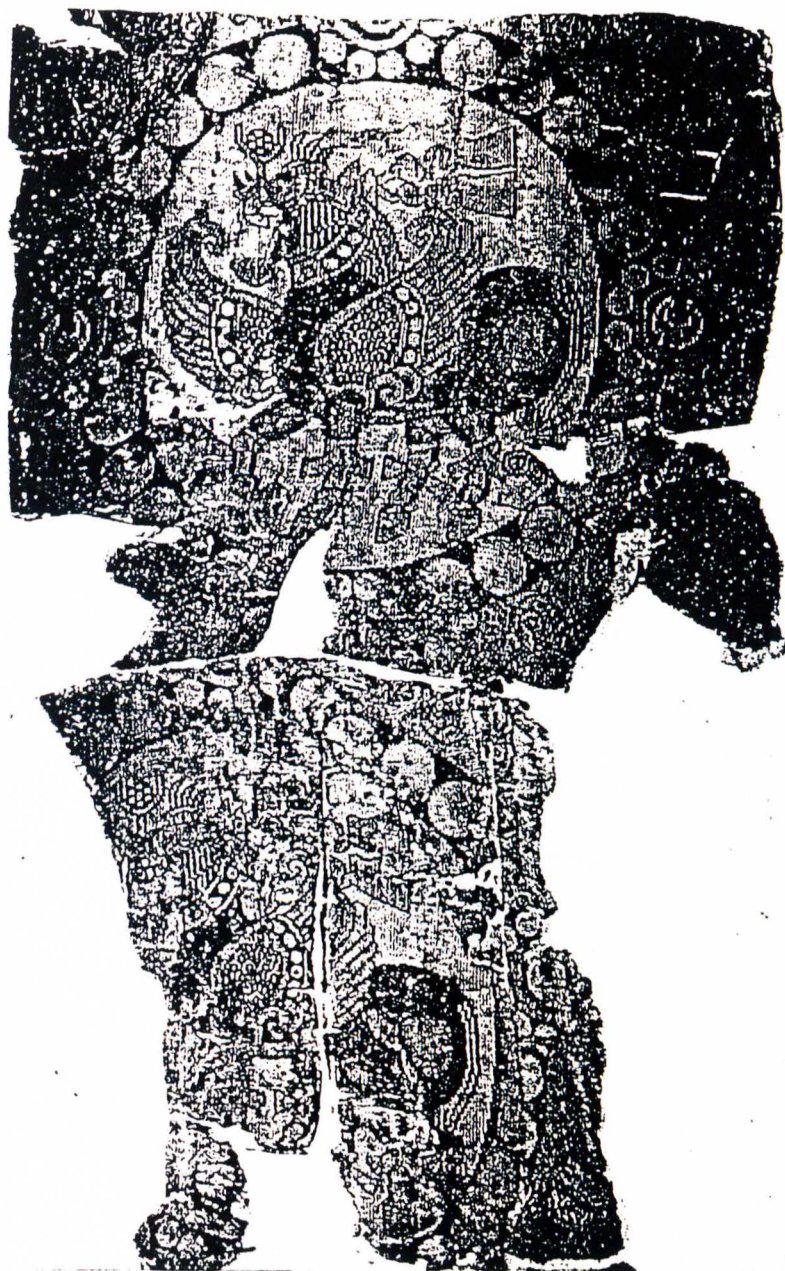


Fig. 3. Winged horse
silk
Musée Historique des Tissus, Lyon
(source: Martiniani-Reber, fig.
p. 27.)

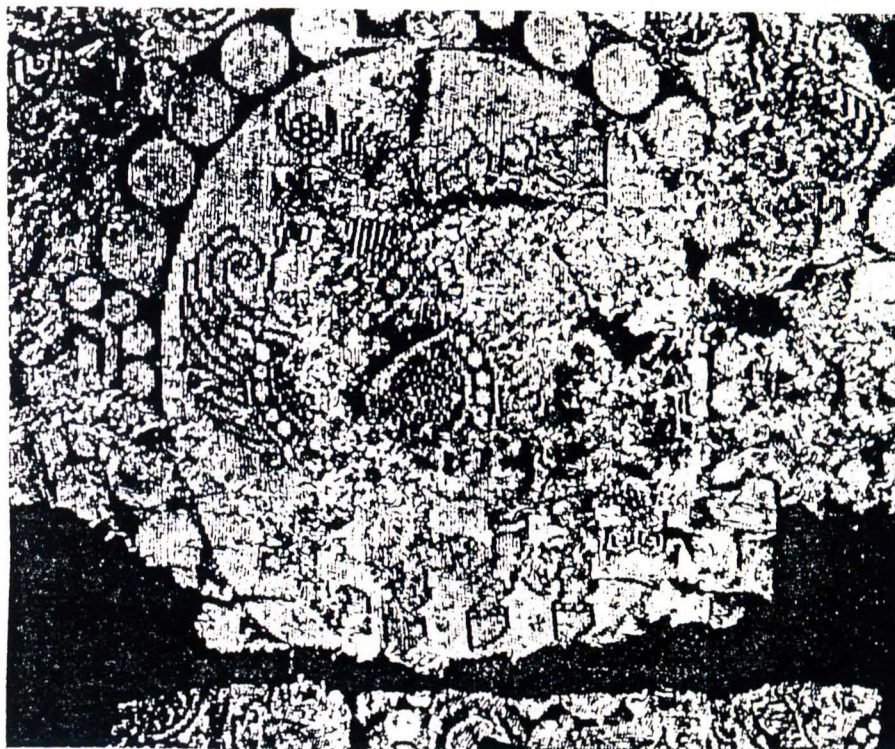


Fig. 4. Winged horse
silk
Louvre, Paris
(source: Ghirshman, fig. 278.)

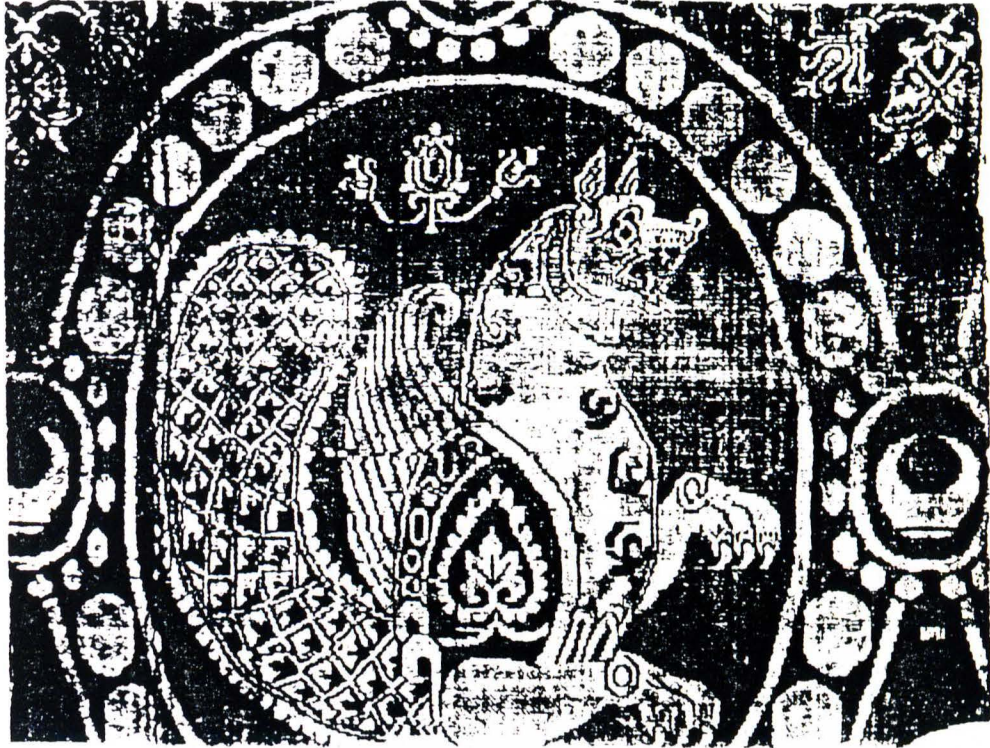


Fig. 5. Senmurv
silk
Victoria and Albert Museum, London
(source: Volbach, fig. 21.)

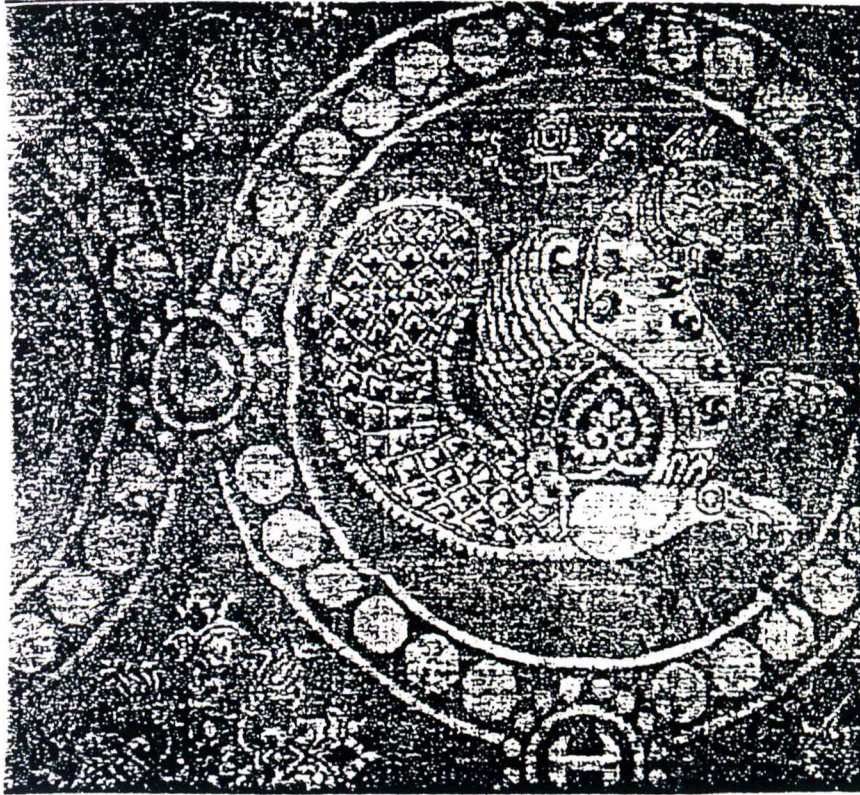


Fig. 6. Senmurv
silk
Musée des Arts Decoratifs, Paris
(source: Ghirshman, fig. 275.)



Fig. 7. Senmurv, shroud
silk
Eglise Saint Rémi, Reims
(source: Riboud, "Caftan," fig. 8.)



Fig. 8. Senmurv, cushion
silk
Eglise Saint Rémi, Reims
(Riboud, "Caftan," fig. 9.)



Fig. 9a. Senmurv, caftan
silk
Hermitage, Leningrad
(source: Riboud, "Caftan,"
fig.1.)

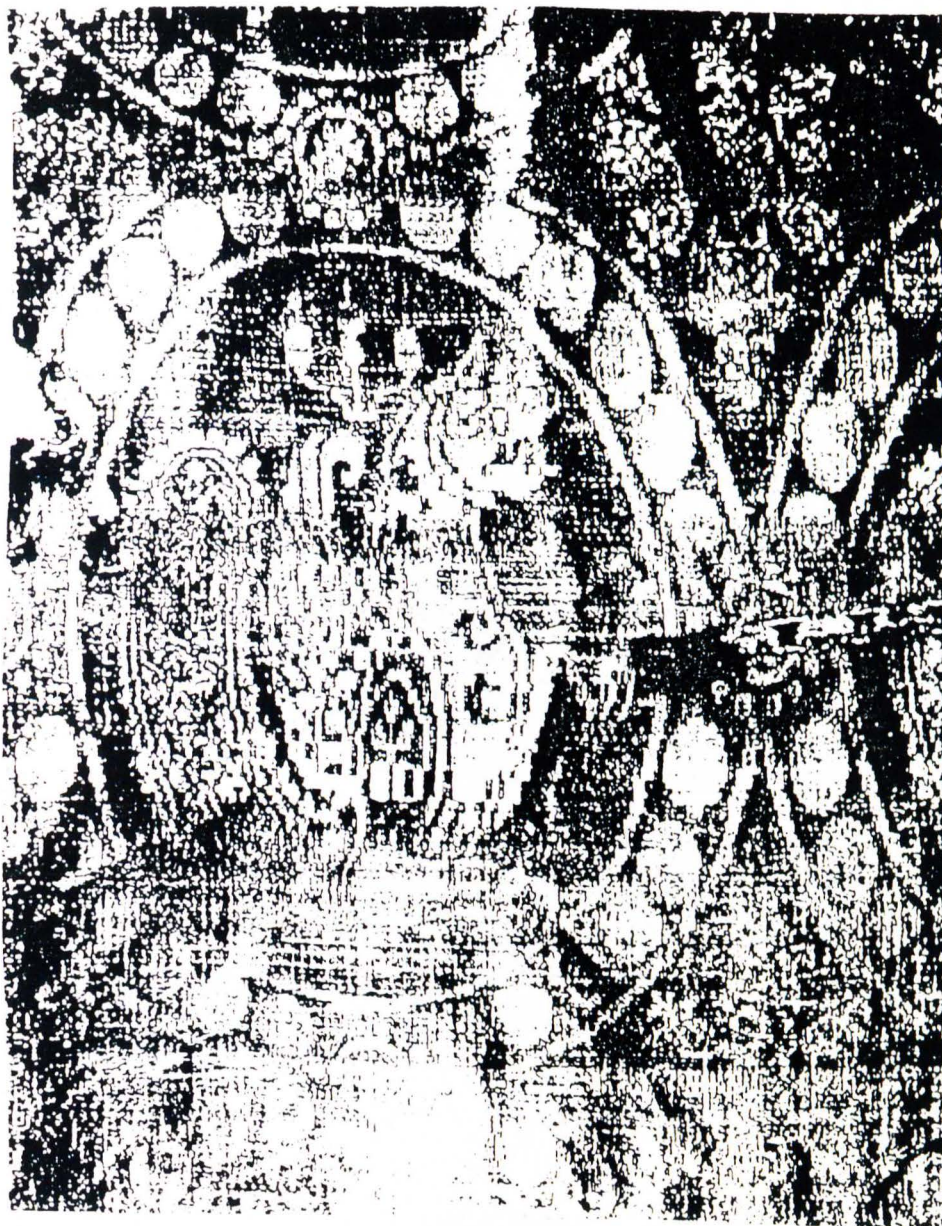


Fig. 9b. Senmurv, detail
silk
Hermitage, Leningrad
(source: Riboud, "Caftan,"
fig. 3.)



Fig. 10. Boar's head
silk
The New Delhi Museum,
New Delhi
(source: Meister, "Pearl Roundel,"
fig. 30.)

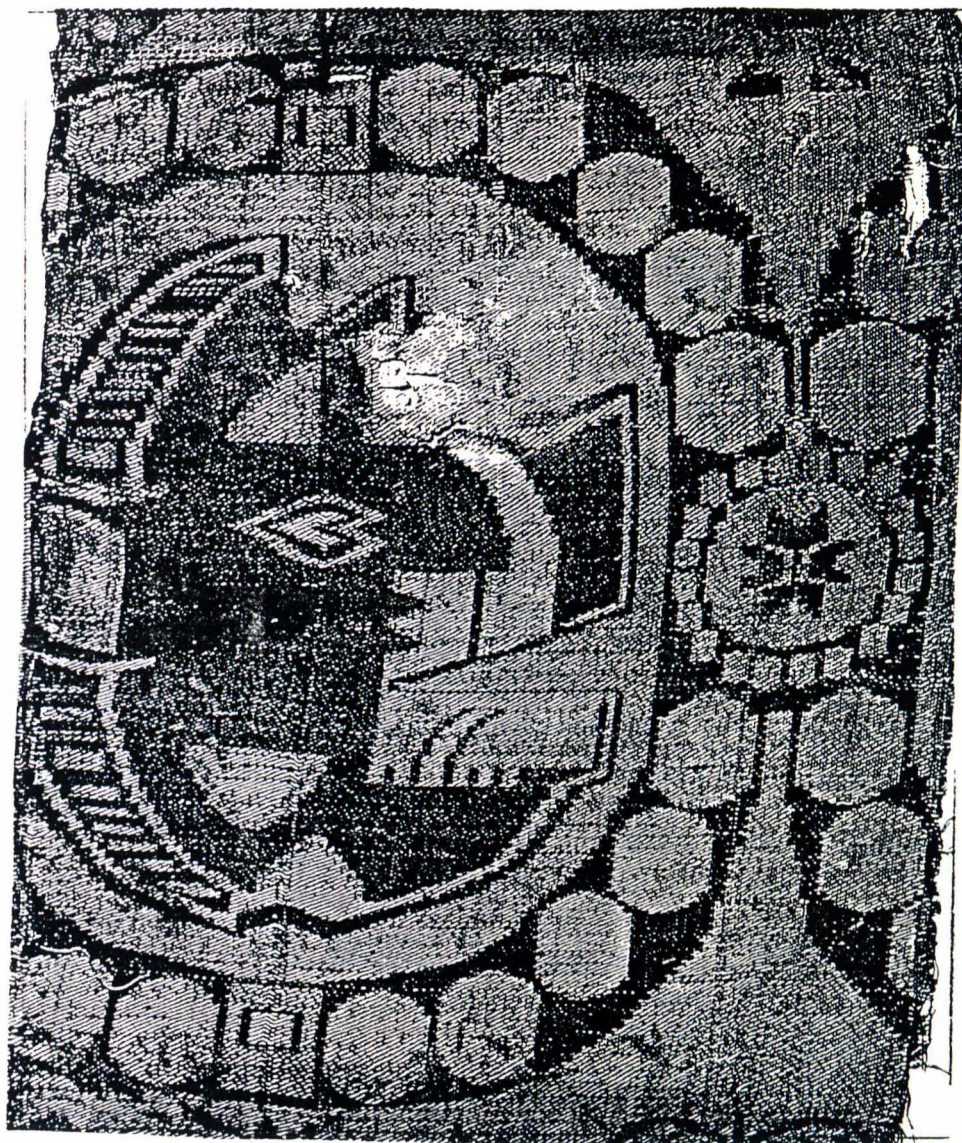


Fig. 11. Boar's head
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Hsin-chiang ch'u-t'u wen-
wu. fig. 143.)

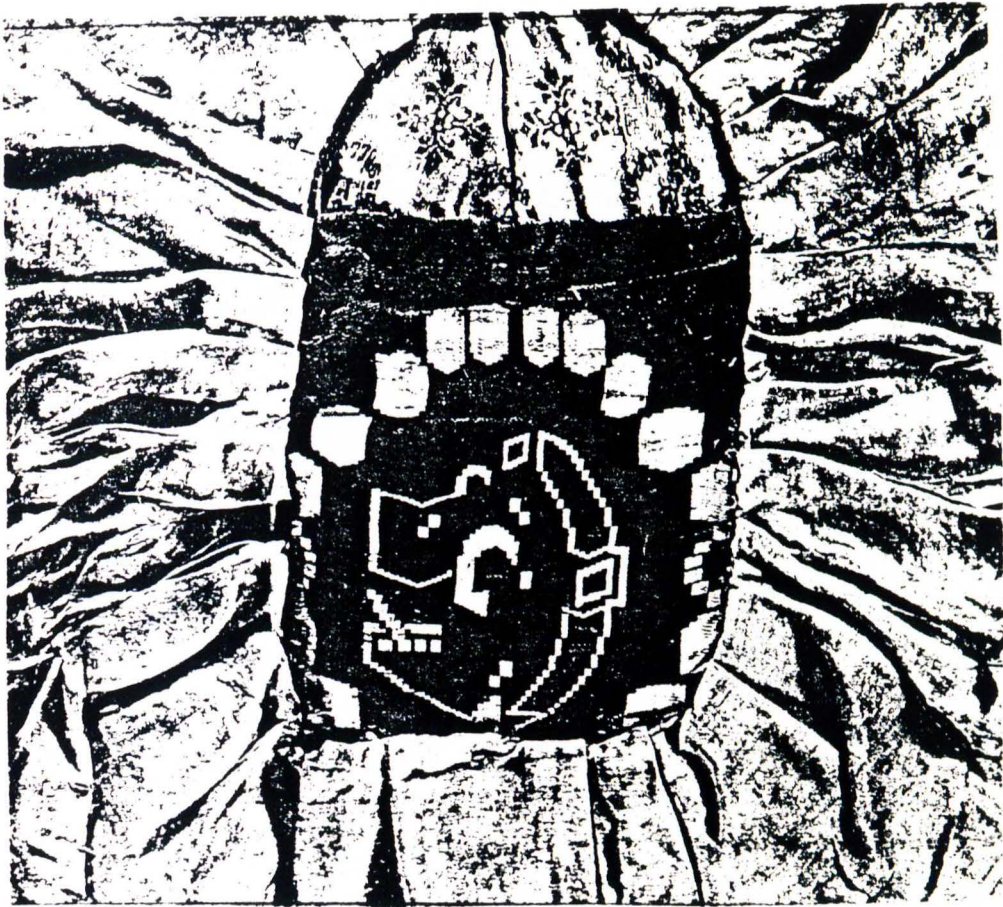


Fig. 12. Boar's head
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Ssu-ch'ou chih-lu.
fig. 38.)



Fig. 13. Stag
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Meister, "Pearl Roundel,"
fig. 33.)

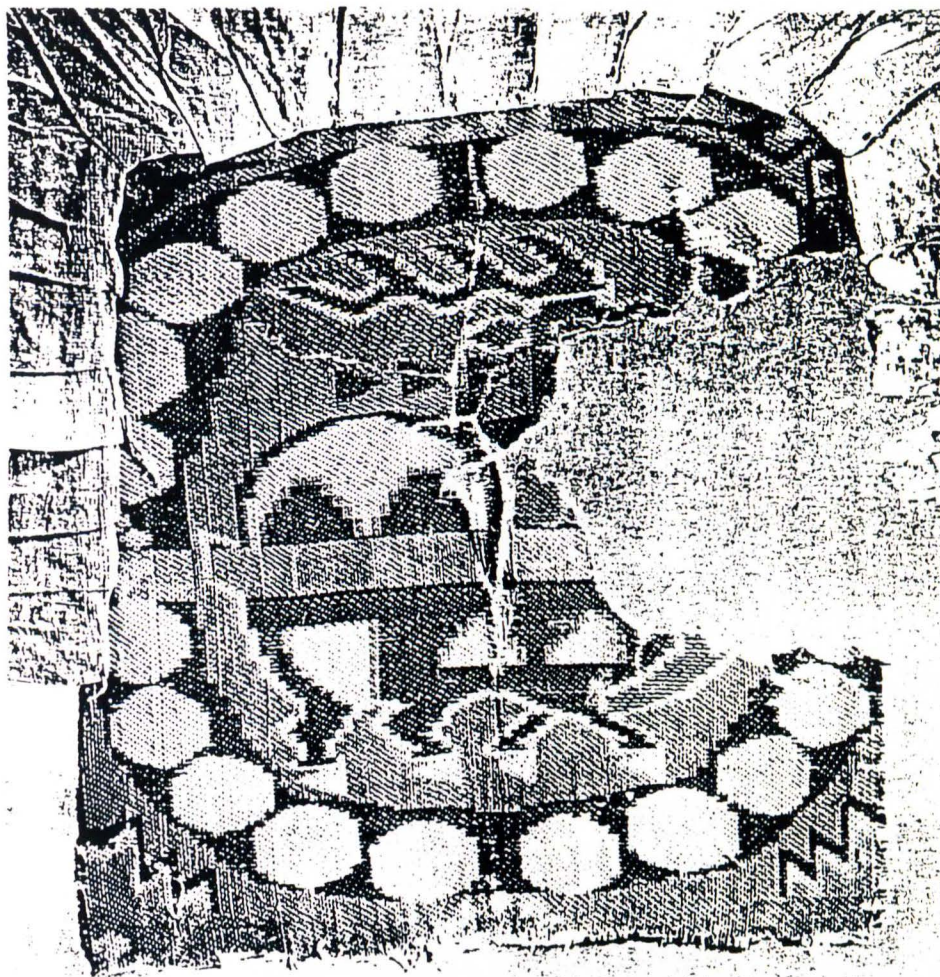


Fig. 14. Stag
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Ssu-ch'ou shih-lu.
fig. 35.)



Fig. 15. Stag
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Wu Min, fig. 17.)

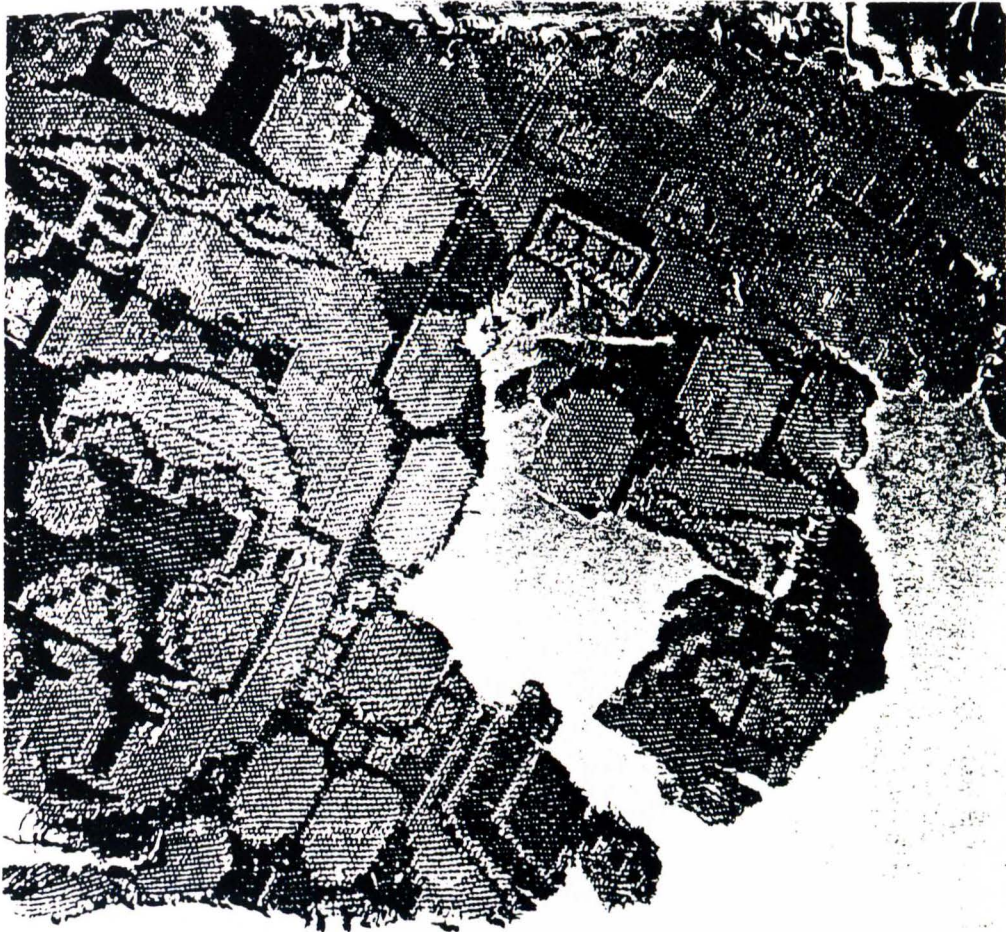


Fig. 16. Stag
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Ssu-ch'ou chih-lu.
fig. 33.)

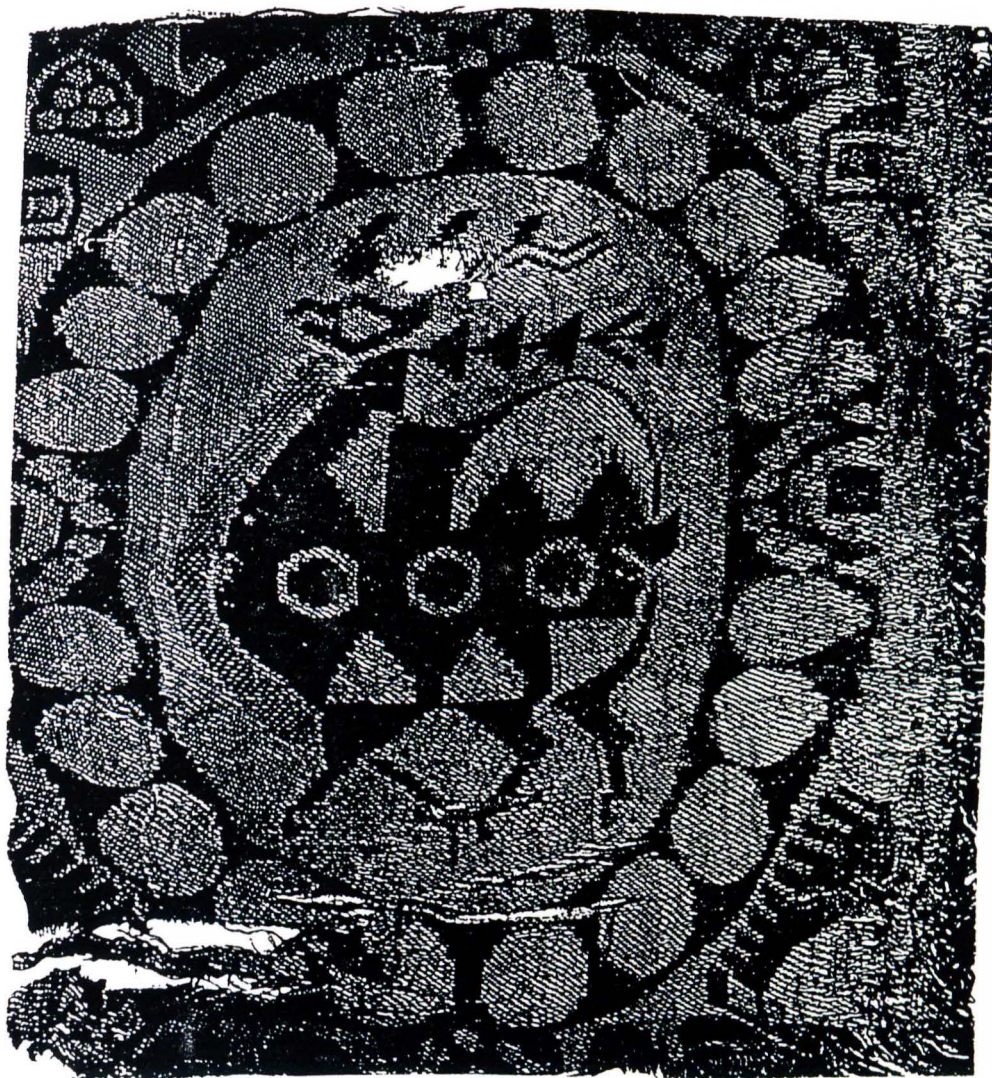


Fig. 17. Stag
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Hsin-chiang ch'u-t'u wen-
wu. fig. 142.)

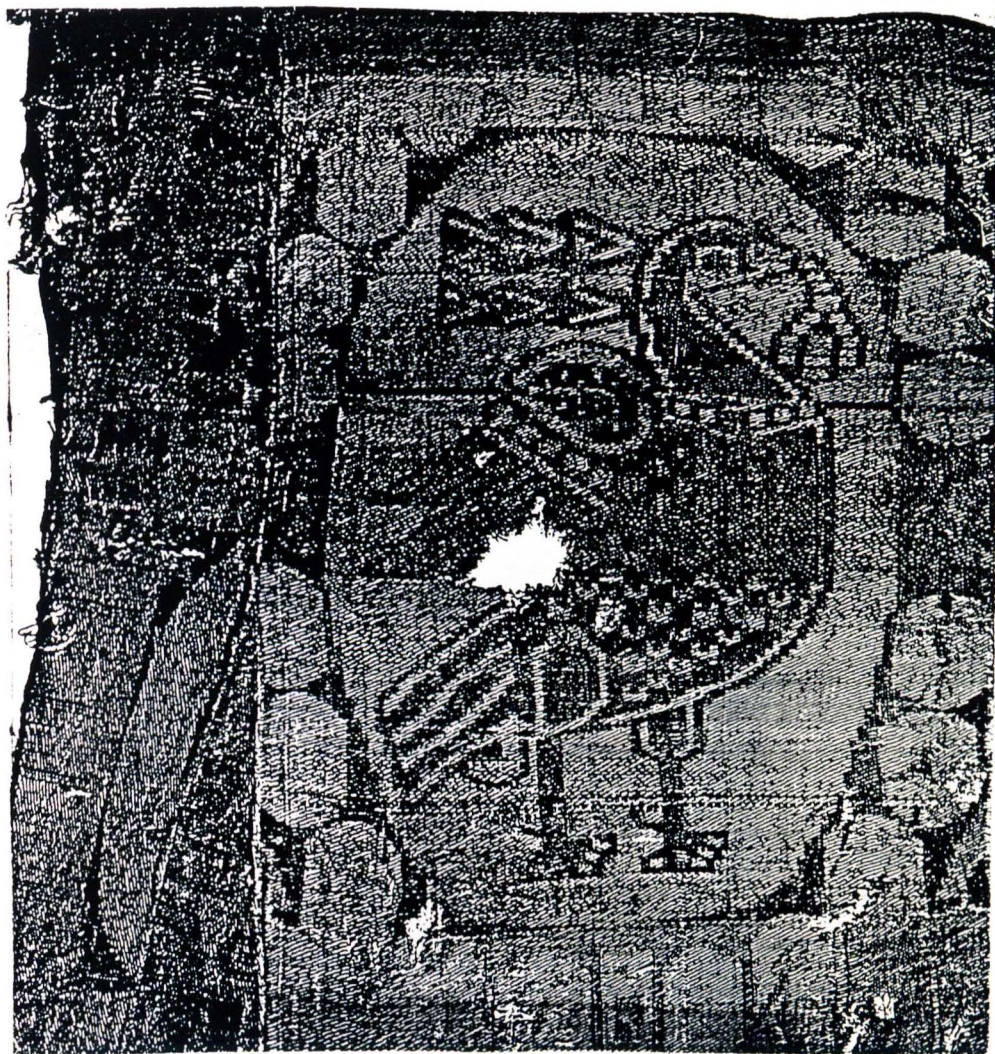


Fig. 18. Beribboned bird
silk
Museum of Uighur Autonomous
Region, Sinkiang
(source: Hsin-chiang ch'u-t'u wen-
wu. fig. 141.)



Fig. 19. Wall-painting
Arrival of foreign missions
at Samarkand court
ancient Samarkand
(source: Azarpay, fig. 51.)

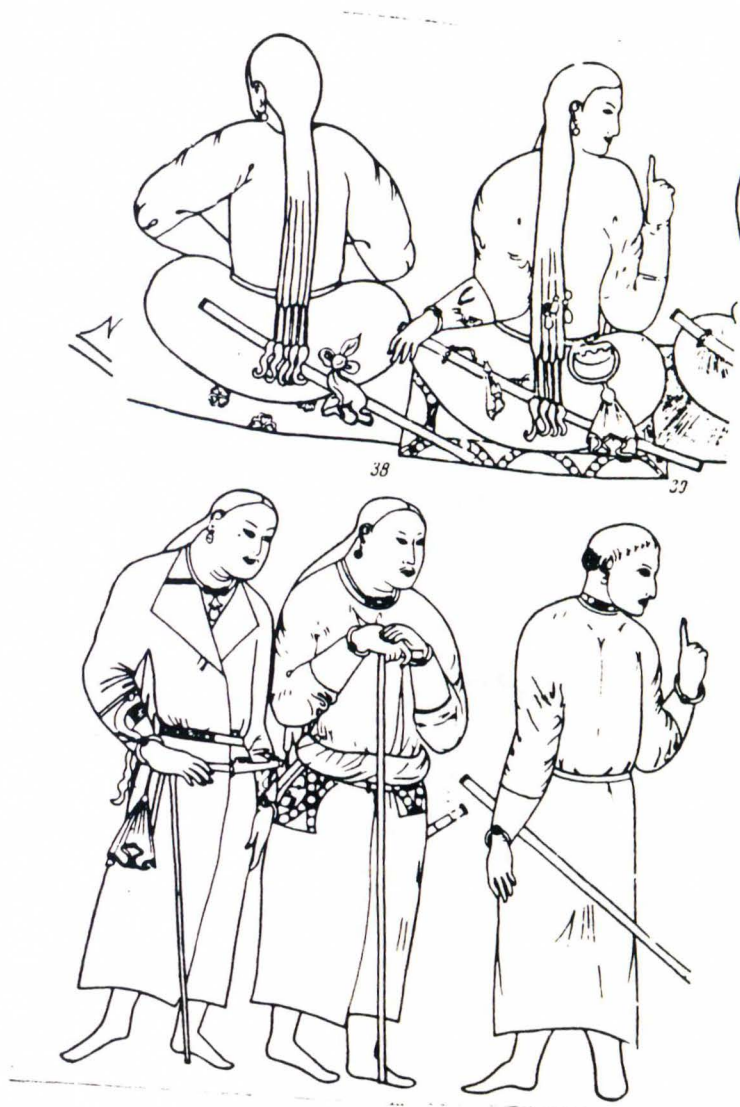


Fig. 20. Wall-painting
 Delegation of Turks among the
 foreign missions at court
 ancient Samarkand
 (source: Azarpay, fig. 52.)



Fig. 21. Wall-painting
Members of the Chaganian mission
to the Samarkand court
ancient Samarkand
(source: Azarpay, fig. 50.)



Fig. 22. Wall-painting
Members of the Chaganian mission
to the Samarkand court
ancient Samarkand
(source: Azarpay, pl. 21.)

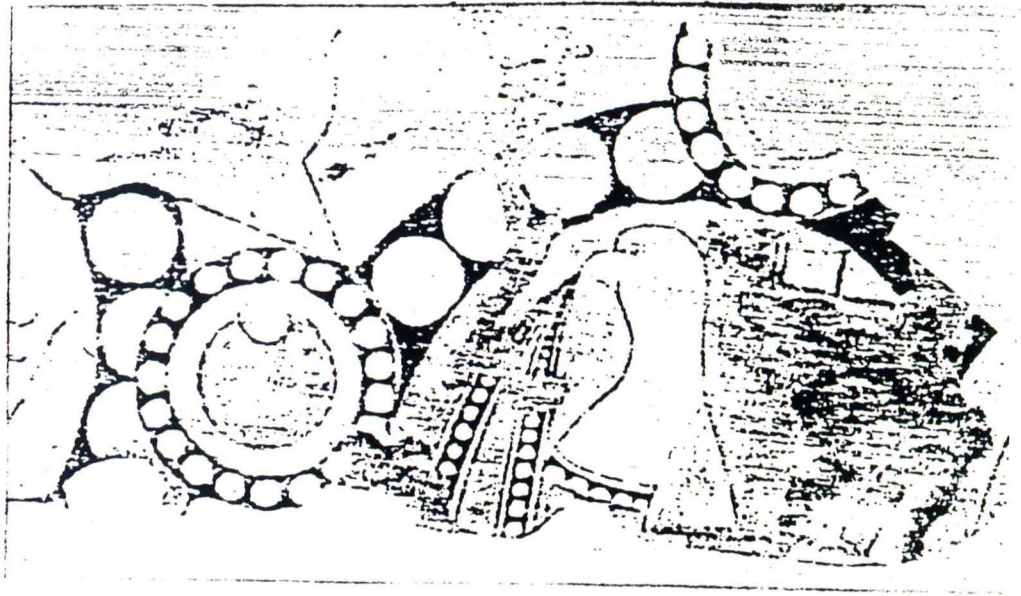


Fig. 23. Wall-painting
Varaksha
(source: Talbott Rice, fig. 98.)

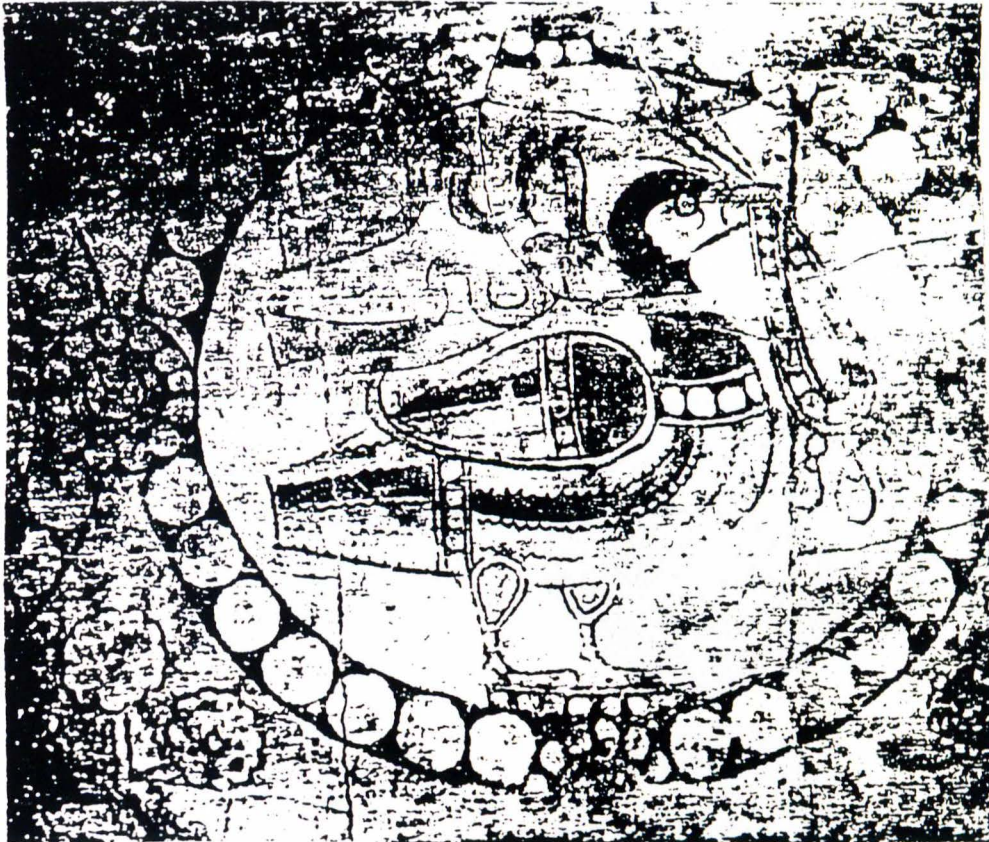


Fig. 24. Wall-painting
Kizil
(source: Rowland, pl. p. 160.)



Fig. 25. Sasanian coins
 reign of Valash (484-488 A.D.)
 (source: Göbl, Sassanidische
Numismatik, pl. 11.)



Fig. 26. Sasanian coins
 reign of Kavid I. (488-497
 & 499-531 A.D.)
 (Göbl, Sassanidsche
Numismatik, pl. 11.)



Fig. 27. Sasanian coin
reign of Yazdgard (632-651 A.D.)
(source: Ghirshman, fig. 329.)

Fig. 28. T'ang mirror
bronze
Hanoi Museum,
Vietnam
(source: Göbl,
"Die Numismatik,"
fig. 23.)



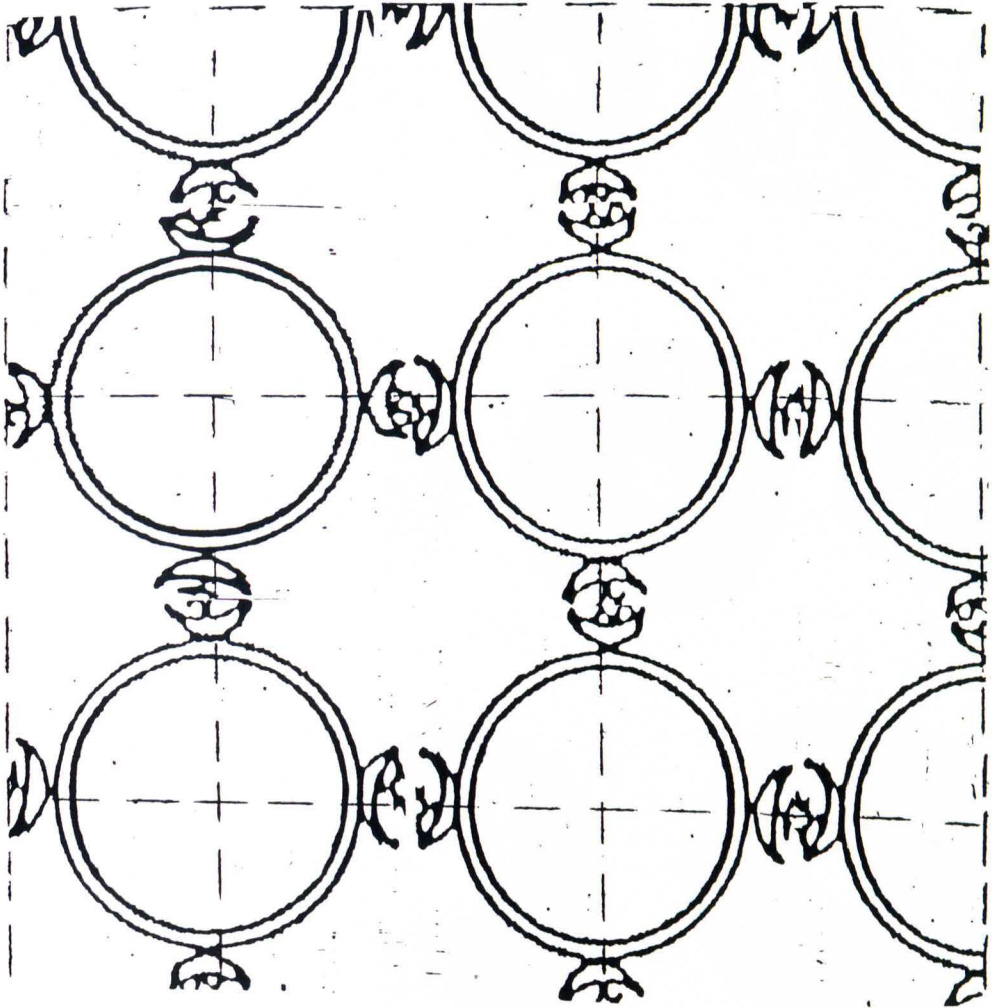


Fig. 29. Sasanian coins, repeated by mirror reflections, to form a pattern of main pearl roundels joined by smaller pearl discs. Dotted lines indicate mirror reflections.
(source: adaptation from Göbl, "Die Numismatik," fig. 21.)

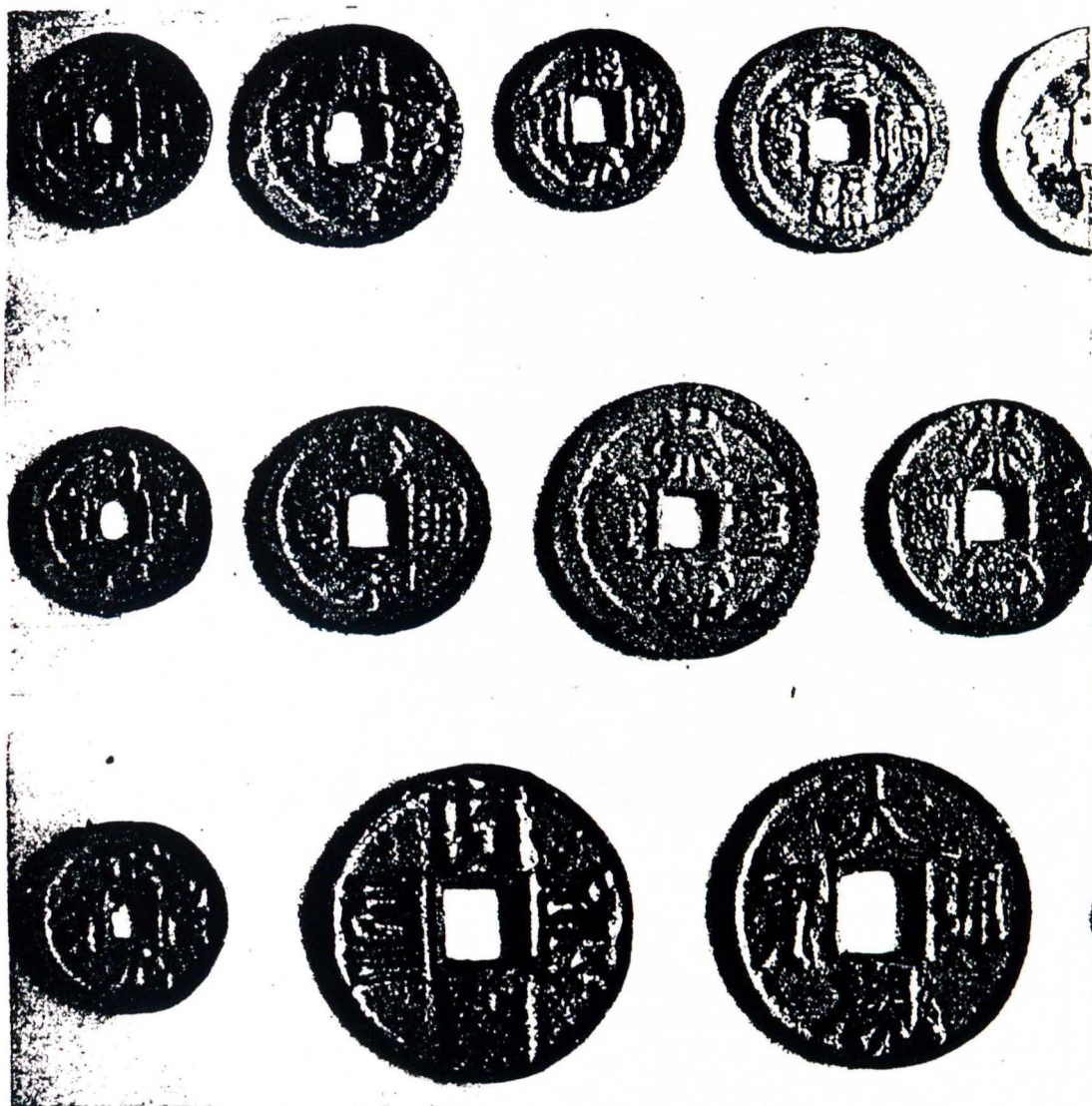


Fig. 30. Coins excavated at Astana
and near-by sites.
(source: Stein, Innermost
Asia, pl. 120.)

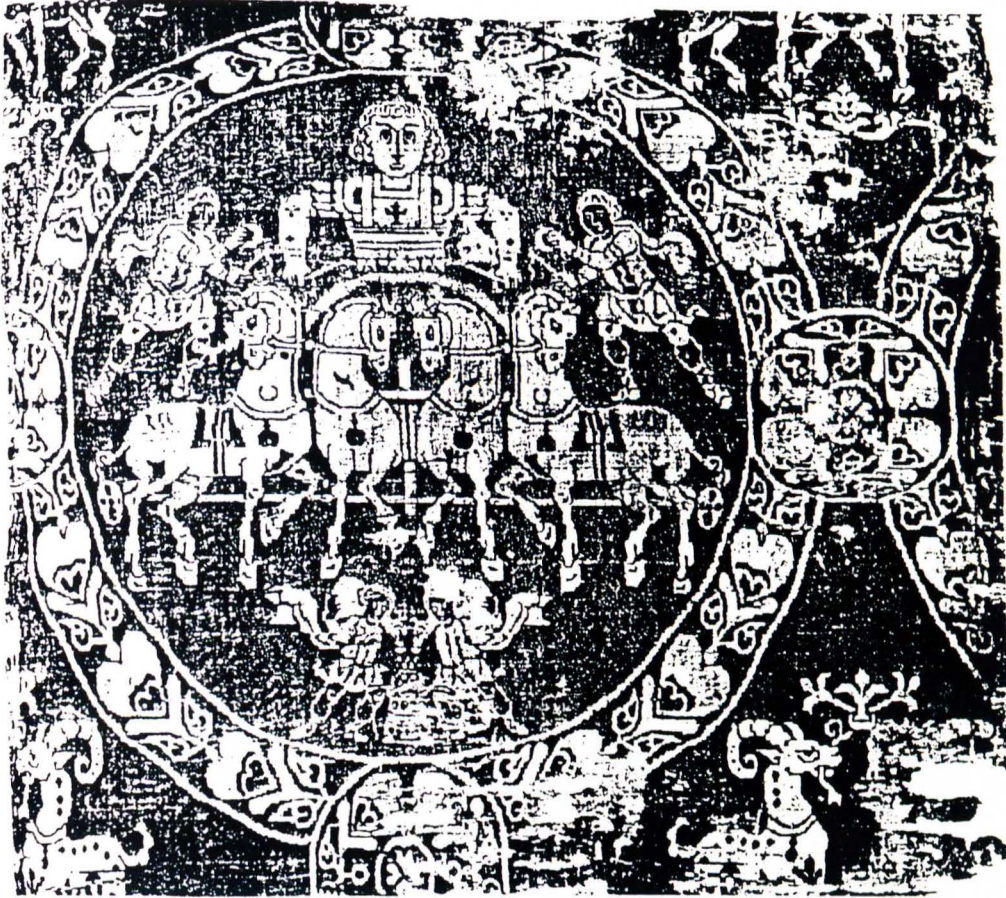


Fig. 31. Quadriga silk
The Cathedral, Aachen
(source: Bunt, fig. 1.)



Fig. 32. Victoria and Albert Museum,
London
(Bunt, fig. 3.)

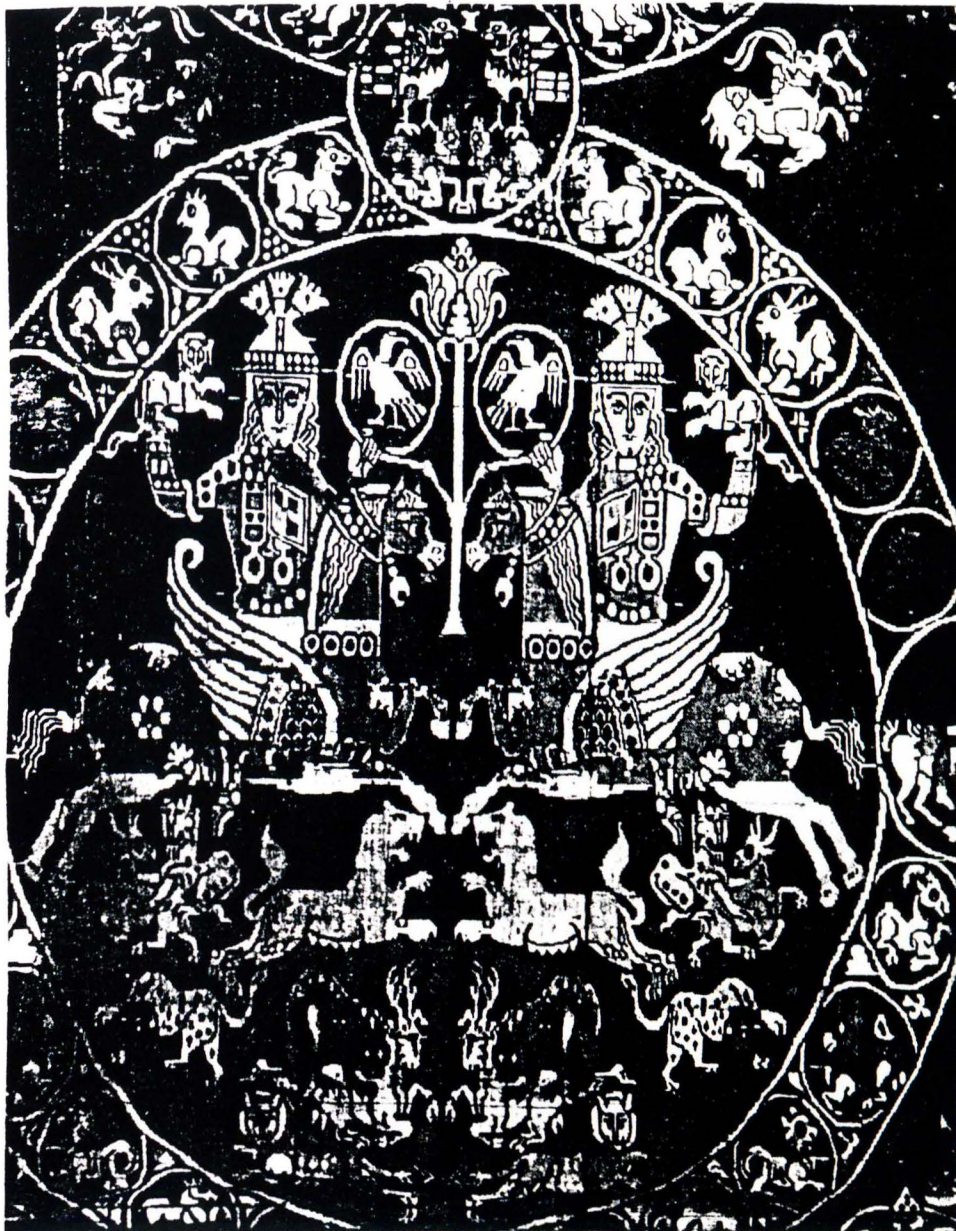


Fig. 33. Horseman silk
Palace Museum, Berlin
(source: Bunt, fig. 11.)

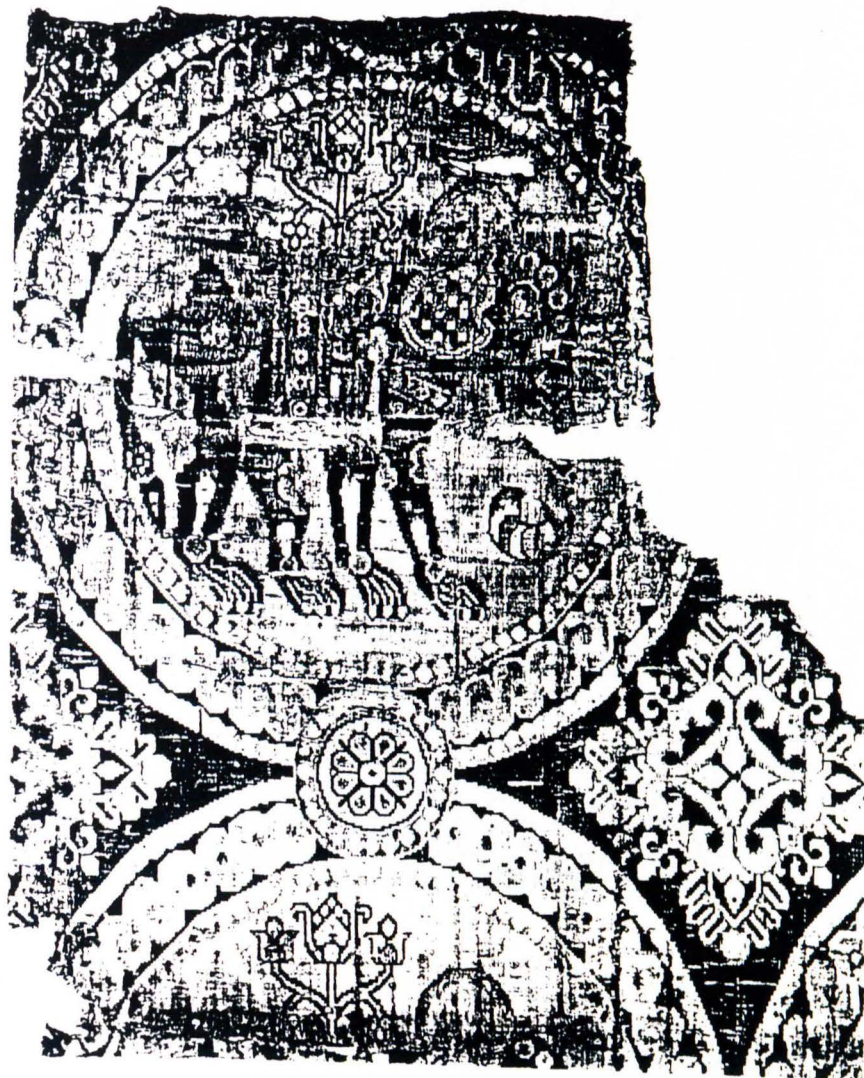


Fig. 34. Elephant silk
Cooper-Hewitt Museum, New York
(source: Bunt, fig. 25.)

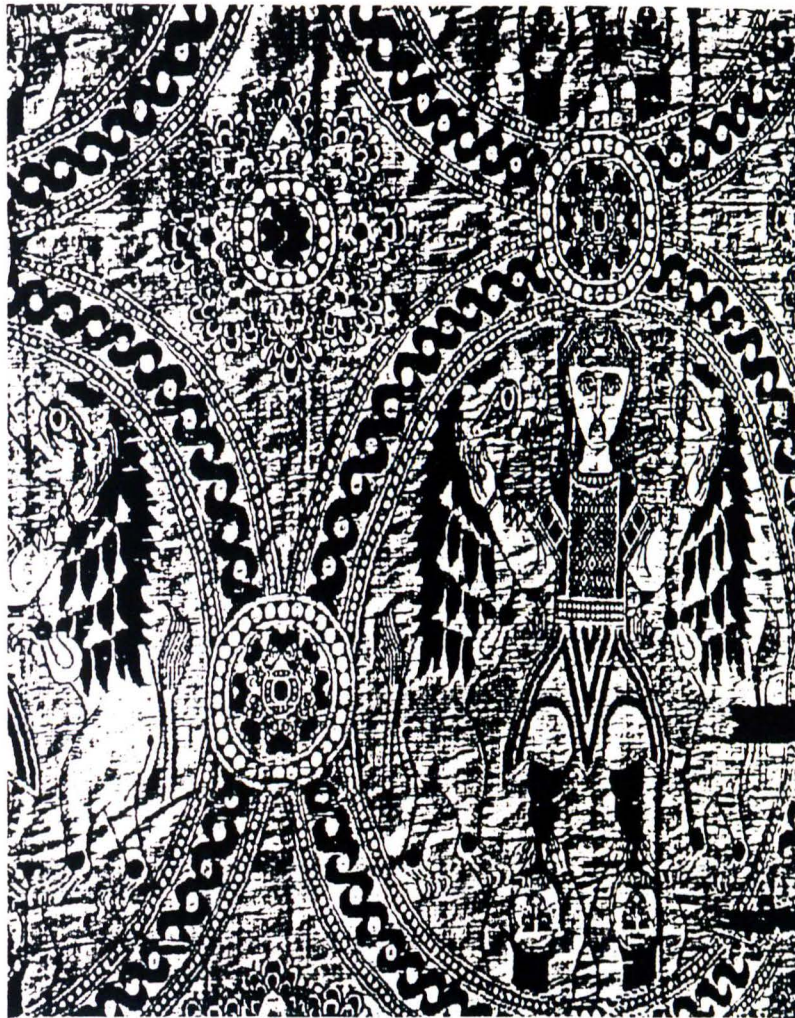


Fig. 35. Shroud of Saint Victor
The Cathedral, Sens
(source: Bunt, fig. 13.)

Appendix 1. Schematic drawings of patterned textiles

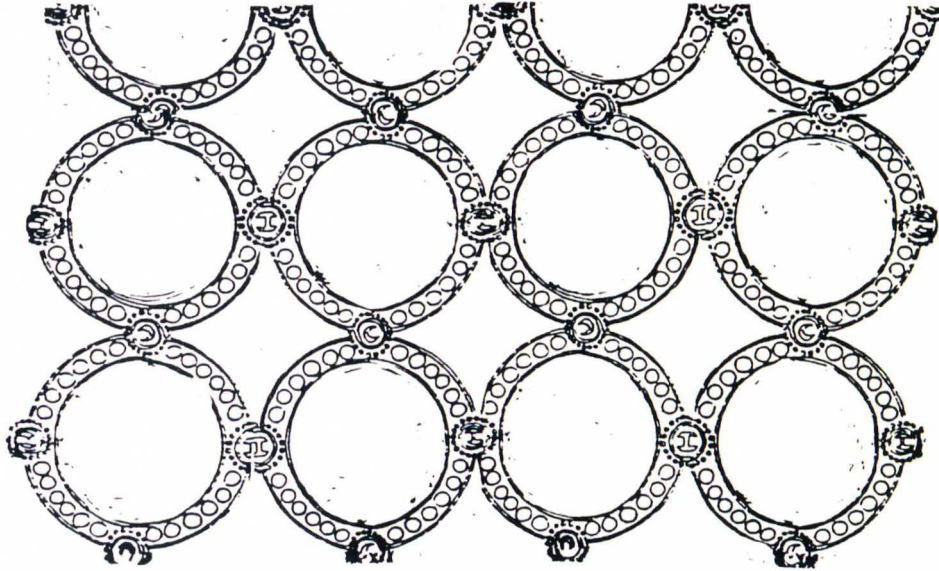


Fig. 1. Pearl roundels joined by smaller pearl discs at the four tangential points
(source: adaptation from Göbl, "Die Numismatik," fig. 19.)

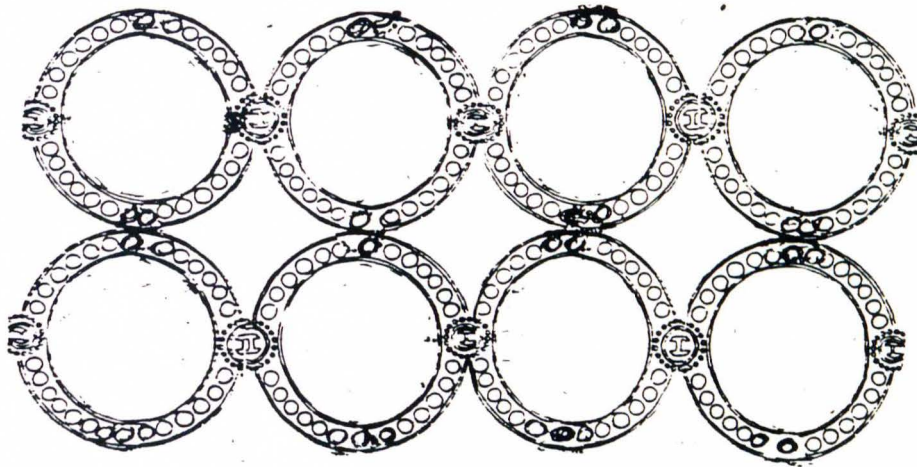


Fig. 2. Pearl roundels joined by smaller pearl discs at the horizontal tangential points
(source: adaptation from Göbl, "Die Numismatik," fig. 19.)

Appendix 2. Extant textiles patterned with pearl roundels
joined by smaller pearl discs.

Table A.

<u>Object #</u> <u>(corresponds</u> <u>to fig.#)</u>	<u>present</u> <u>location</u>	<u>motif w.in</u> <u>main roundel</u>	<u>motif w.in</u> <u>pearl disc</u>
1. See note 25 & 26.	Textile Museum, Wash. D.C.	long-legged bird	undecorated
2. See note 29.	Museo Sacro, Vatican	bird on plinth	?
3. See note 33.	Musée Historique des Tissus, Lyon	winged horse	crescent
4. See note 33.	Louvre, Paris	winged horse	crescent
5. See note 38.	Victoria and Albert, London	senmurv	crescent
6. See note 38.	Musée des Arts Decoratifs, Paris	senmurv	crescent
7. See note 45.	Eglise St. Rémi, Reims	senmurv	crescent
8. See note 45.	Eglise St. Rémi, Reims	senmurv	crescent
9. See note 48.	Hermitage, Leningrad	senmurv	crescents
10. See note 54.	Museum of New Delhi, New Delhi	boar's head	crescent (?)
11. See note 68.	Mus.of Uighur Aut. Region, Sinkiang	boar's head	crescents
12. See note 77.	Mus.of Uighur Aut. Region, Sinkiang	boar's head	undecorated (?)
13. See note 81.	Mus.of Uighur Aut. Region, Sinkiang	stag	?
14. See note 82.	China	stag	?

- | | | | |
|------------------|-------------------------------------|-----------------|-------------------------|
| 15. See note 83. | China | stag | ? |
| 16. See note 84. | Mus.of Uig. Aut. Region, Sinkiang | stag | undecorated |
| 17. See note 85. | China | stag | circle enclosing square |
| 18. See note 86. | Mus.of Uighur Aut. Region, Sinkiang | beribboned bird | ? |



Table B.

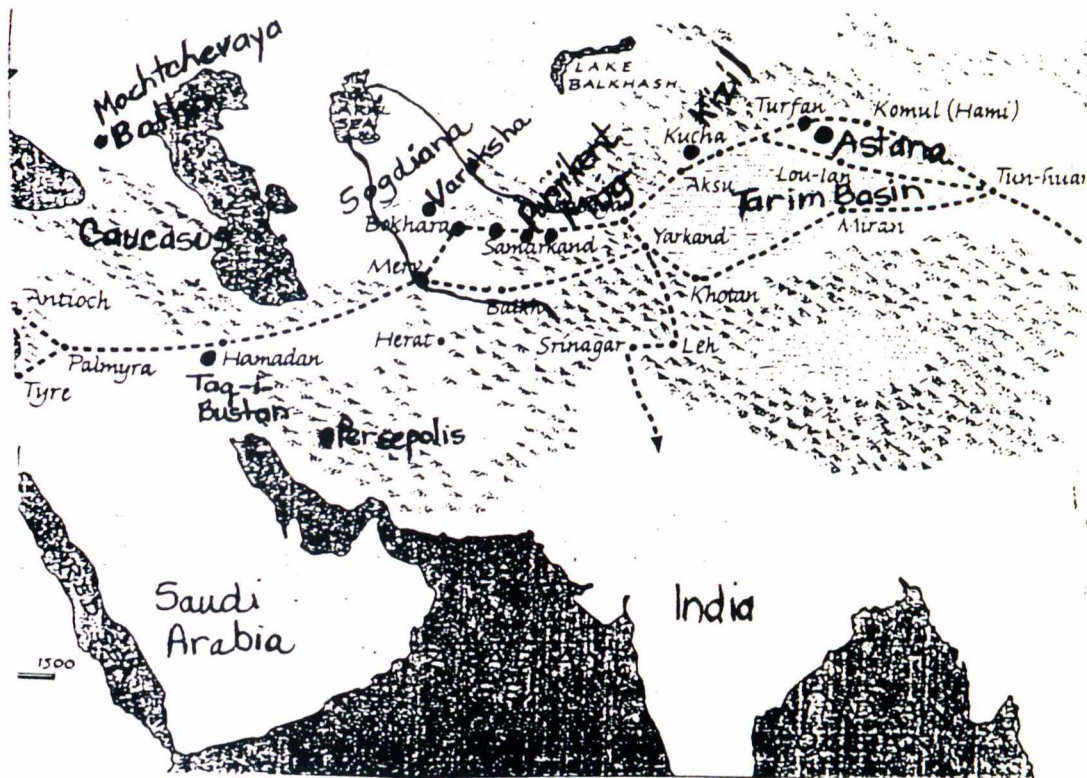
<u>Object #</u> <u>(corresponds</u> <u>to fig. #)</u>	<u>diameter of</u> <u>main roundel</u> <u>in cm. (lxw)</u>	<u>find site &</u> <u>date</u>	<u>colors</u>
1. See note 25 & 26.	16x13.5	acquired in Egypt, ea. 20th cent.	red gr. w. white
2. See note 29.	?	reliquary in Lateran, Rome	yellow\gray gr. w. black\red
3. See note 33.	13.1x13.1	Antinoe, ea. 20th cent.	white gr. w. dark blue\yellow
4. See note 33.	?	Antinoe, ea. 20th cent.	white gr. w. dark blue\brown
5. See note 38.	ca. 37	reliquary, St. Leu, Paris	green gr. w. yellow
6. See note 38.	41x41	reliquary, St. Leu, Paris	green gr. w. yellow
7. See note 45.	28.75 x28.75	shroud, St. Remi, Reims	monochrome red
8. See note 45.	16x14.5	reliq. cushion, St. Remi, Reims	monochrome red
9. See note 48.	ca. 20x17	Mochtchevaya Balka, 1969	dark green gr. w. green\yellow
10. See note 54.	23	Astana, ea. 20th cent.	brown gr. black
11. See note 68.	ca. 18\20 x18\20	Astana Cave 325, 1959	yellow gr. w. dk. green, blue, white

12. See note 77.	16x14	Astana Tomb 138. 1969	red gr. w. dk. green, blue, white
13. See note 81.	ca. 17	Astana Tomb 55	red gr. w. green blue, white
14. See note 82.	ca. 20\25	Astana Cave 322	?
15. See note 83.	ca. 22\26	Astana Cave	?
16. See note 84.	?	Turfan Tomb 84	?
17. See note 85.	ca. 20x18	Astana, 1959	yellow gr. w. dk. green, green, blue
18. See note 86.	ca. 22x18	Astana Cave 332, 1959	yellow gr. w. dk. green, blue, white

Table C.

<u>Object #</u> <u>corresponds</u> <u>to fig. #)</u>	<u>material</u>	<u>weave</u> <u>structure</u>	<u>symmetry</u> <u>operation</u>	<u>fabric dimen.</u> <u>in cm. (lxw</u> <u>warpxweft)</u>
			↶↷	
1. See note 25 & 26.	cotton & wool	weft-faced comp. twill	↷↶ ↶↷	47x35.5 40x23.5
2. See note 29.	silk	weft-faced comp. twill	↶↶	?
3. See note 33.	silk	weft-faced comp. twill	too fragmentary	31x16.5
4. See note 33.	silk	weft-faced comp. twill	too fragmentary	12.5\17 x17
5. See note 38.	silk	weft-faced comp. twill	1 main roundel	34x50
6. See note 38.	silk	weft-faced comp. twill	↶↷ ↶↶↶	44\46 x56
7. See note 45.	silk	weft-faced comp. twill	↷↶↷	230 x190

8. See note 45.	silk	weft-faced comp. twill		?
9. See note 48.	silk	weft-faced comp. twill		comp. caftan
10. See note 54.	silk	weft-faced comp. twill	1 main roundel	19x20
11. See note 68.	silk	weft-faced comp. twill	1 main roundel	23.5 x17.8
12. See note 77.	silk	weft-faced comp. twill	1 main roundel	16x14
13. See note 81.	silk	weft-faced comp. twill	1 main roundel	17.5 x17
14. See note 82.	silk	weft-faced comp. twill	1 main roundel	?
15. See note 83.	?	?	1 main roundel	?
16. See note 84.	silk	weft-faced comp. twill	too fragmentary	23.8x14.6
17. See note 85.	silk	weft-faced comp. twill	1 main roundel	21.5x20
18. See note 86.	silk	weft-faced comp. twill	1 main roundel	23.5x18.8



Map of the Old Silk Route
 (source: adaptation from The Metropolitan
 Museum of Art, map. p. 19.)

Glossary of Terms

Achaemenids - Persian royal dynasty, reigning from c. 700 B.C. until the conquest of Alexander the Great in 330 B.C.

Bercle - A shaded effect in fabric produced by alternating floats of weft in different colors.

Chagan - A title used by heads of state among many Turkic-speaking peoples and Mongols in the early Middle Ages.

Drawloom - A hand loom for figured textiles with a special type of figure harness to control some or all of the warp ends.

Fu-mien - Oval or circular face-covers in patterned silk found in ancient burials in Sinkiang.

Han - Imperial dynasty of China, reigning from 206 B.C. to A.D. 220.

Hephthalites - A steppe people from Mongolia, also known as White Huns, who settled along the Oxus river in the fourth and fifth centuries A.D., forming one, or perhaps several powerful kingdoms.

Mirror reflection - One of the four symmetry operations generated when a motif is reflected as in a mirror.

Old Silk Route - The ancient trade and transport route from Syria and Persia through Central Asia to China.

Parthians - Dynasty descending from a nomad tribe of

Iranian origin, in power in northeastern Iran from 250 B.C. to A.D. 224.

Pearl roundel - A circular framing device with a double border enclosing a repetition of circle-shapes or "pearls."

Pearl disc - A small pearl roundel, seen at the tangential points of main pearl roundels in patterned textiles.

Repeat system - The way in which a single motif is arranged in two dimensions to create a pattern. There are exactly seventeen ways, known as the seventeen wallpaper patterns, symmetry groups, or pattern types.

Roundel - A circular framing device, also called a medallion.

Sasanians - Ruling dynasty in Persia from A.D. 224-651.

Senmurv - A mythical, winged creature with a dog's head, lion's paws and peacock's tail. It is also called *simurgh*, hippocampus or dragon-peacock.

Symmetry operation - Synonymous with repeat system, combinations of four types of symmetry operations create the seventeen pattern types.

T'ang - Chinese dynasty from A.D. 618-907. This was a golden age for China in the arts and politics.

Tag-i-Bustan - Site in Iran, with monumental rock sculpture dating from the fourth to seventh century A.D.

Uighurs - Eastern Turks who gradually occupied Mongolia in the seventh and eighth centuries A.D. and were conquered in 847. Their culture derived from Iran, India and China.

Weft-faced compound twill - Synonymous with samit, a weave where only the weft threads appear on the face of the fabric. Twill refers to a binding system of warps and wefts that produces parallel diagonal ribs.